The EDISON ELECTRIC INSTITUTE BULLETIN

April
1953

EEI Convention Notes

Electric Industry in Perspective
B. L. England

Nuclear Power and State Power
Thomas E. Murray

Problem Drinking and Industry
S. Charles Franco, M.D., F.A.C.P.

Why Promote Adequate Wiring?
Carl T. Bremicker

Reporting Generating Capacities
Hendrik A. Diamant

Published Monthly by Edison Electric Institute

ELECTRICAL RESEARCH STATISTICS
THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

December, 1951-1952

SOURCE AND DISPOSAL OF ENERGY—MONTH OF DECEMBER

	1952	1951	%
GENERATION* (Net)			
By Fuel Burning Plants	28,231,062,000	24,043,606,000	+17.4
By Water Power Plants	8,221,356,000	9,126,129,000	− 9.9
Total Generation	**36,452,418,000**	**33,169,735,000**	**+ 9.9**
ADD—Net Imports Over International Boundaries	114,776,000	162,941,000	−29.6
Less—Company Use	137,274,000	117,481,000	+16.8
Less—Energy Used by Producer	747,741,000	653,430,000	+14.4
Net Energy for Distribution	**35,682,179,000**	**32,561,765,000**	**+ 9.6**
Lost and Unaccounted for	5,006,518,000	4,299,087,000	+16.5
Sales to Ultimate Customers	**30,675,661,000**	**28,262,678,000**	**+ 8.5**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of December 31			
Residential or Domestic	40,747,518	39,224,621	+ 3.9
Rural (Distinct Rural Rates)	1,663,201	1,658,728	+ 0.3
Commercial or Industrial:			
Small Light and Power	5,634,130	5,528,117	+ 1.9
Large Light and Power	256,294	247,532	+ 3.5
Other Customers	158,228	162,881	− 2.9
Total Ultimate Customers	**48,459,371**	**46,821,879**	**+ 3.5**
KILOWATTHOUR SALES—During Month of December			
Residential or Domestic	8,258,822,000	7,446,674,000	+10.9
Rural (Distinct Rural Rates)	525,332,000	520,895,000	+ 0.9
Commercial or Industrial:			
Small Light and Power	5,413,857,000	4,975,643,000	+ 8.8
Large Light and Power	14,888,237,000	13,704,043,000	+ 8.6
Street and Highway Lighting	363,476,000	347,133,000	+ 4.7
Other Public Authorities	714,347,000	698,924,000	+ 2.2
Railways and Railroads:			
Street and Interurban Railways	280,852,000	315,881,000	−11.1
Electrified Railroads	198,788,000	210,676,000	− 5.7
Interdepartmental	31,950,000	42,809,000	−25.4
Total to Ultimate Customers	**30,675,661,000**	**28,262,678,000**	**+ 8.5**
Revenue from Ultimate Customers	**$550,591,500**	**$501,348,600**	**+ 9.8**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—For 12 months ended December 31			
Kilowatthours per Customer	2,169	2,004	+ 8.2
Average Annual Bill	$60.08	$56.31	+ 6.7
Revenue per Kilowatthour	2.77¢	2.81¢	− 1.4

* By Courtesy of the Federal Power Commission.

THE EDISON ELECTRIC INSTITUTE BULLETIN is published monthly by the Edison Electric Institute, an association of electric light and power companies in the United States and its territorial possessions. Its affiliate members consist of members of the Canadian Electrical Association.

The objectives of the Edison Electric Institute are:

The advancement in the public service of the art of producing, transmitting, and distributing electricity and the promotion of scientific research in such field.

The ascertainment and making available to the members and the public of factual information, data, and statistics relating to the electric industry.

To aid its operating company members to generate and sell electric energy at the lowest possible price commensurate with safe and adequate service, giving due regard to the interests of consumer, investor, and employee.

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CONVENTIONS AND MEETINGS

1953

APRIL

2- 3 IES Pacific Northwest Regional Conference, Benson Hotel, Portland, Ore.
8- 9 Pacific Coast Electrical Association Administrative Services Section Conference, Phoenix, Ariz.
8-10 Northwest Electric Light and Power Association, Engineering and Operation Section, Multnomah Hotel, Portland, Ore.
8-10 Missouri Valley Electric Association Engineering Conference, President Hotel, Kansas City, Mo.
9 PIP East North Central Regional Meeting, Statler Hotel, Detroit, Mich.
12-14 IES Southwestern Regional Meeting, Hotel Baker, Dallas, Texas.
12-15 AGA Purchasing and Stores Committee, Hotel Schroeder, Milwaukee, Wis.
13-14 EEI Power Station Chemistry Subcommittee of Prime Movers Committee.
13-16 EEI Transportation Committee, Jointly with AGA Motor Vehicle Committee, Hotel Sherman, Chicago, Ill.
16 EEI Industrial Relations Committee, in conjunction with Personnel Section of Ohio Electric Institute, Netherlands Plaza Hotel, Cincinnati, Ohio
16-17 Southeastern Electric Exchange Engineering and Operating Section Conference, Edgewater Gulf Hotel, Edgewater Park, Miss.
17 Maryland Utilities Association, Annual Meeting, Lord Baltimore Hotel, Baltimore, Md.
20 NCEA Production Engineering Meeting, Dyckman Hotel, Minneapolis, Minn.
20-22 National Conference of Electric and Gas Utility Accountants, Sherman Hotel, Chicago, Ill.
21 NCEA Accident Prevention Committee, Dyckman Hotel, Minneapolis, Minn.
21-23 Oklahoma Utilities Association, Southwestern Gas Measurement Short Course, University of Oklahoma, Norman, Okla.
22 NCEA Distribution and Equipment Engineering Meeting, Dyckman Hotel, Minneapolis, Minn.
23-24 PEA Meter Committee, Hagerstown, Md.
24-25 NCEA South Dakota All-Electrical Industry Meeting, Ward Hotel, Aberdeen, S. Dak.
26-28 Rocky Mountain Electrical League Annual Spring Conference, Shirley Savoy Hotel, Denver, Colo.
30 PIP Steering Committee, Hotel Blackstone, Chicago, Ill.
30-May 1 PEA Communications Committee, Hotel Roosevelt, Pittsburgh, Pa.

MAY

1 PIP Mid-Atlantic Regional Meeting, Hotel Biltmore, New York, N. Y.
1- 2 Controllers Institute of America, Pacific Coast Conference, Hotel Ambassador, Los Angeles, Calif.
3- 6 EEI Purchasing and Stores Committee Annual Meeting, Hotel Statler, Detroit, Mich.
4- 5 EEI Accident Prevention Committee, Edgewater Beach Hotel, Chicago, Ill.
4- 6 Northwestern Electric Light and Power Association, Business Development Section, Davenport Hotel, Spokane, Wash.
5- 6 EEI Transmission and Distribution Committee, Edgewater Beach Hotel, Chicago, Ill.
5- 6 PIP West North Central Regional Meeting, Russell Lamson Hotel, Waterloo, Iowa
7- 8 Great Lakes Power Club Spring Meeting, Indianapolis Athletic Club, Indianapolis, Ind.
7- 8 PEA Industrial Sales Conference, Galen Hall, Wernersville, Pa.
7- 8 PUAA Annual Convention, Chase Hotel, St. Louis, Mo.
11-12 EEI Electrical Equipment Committee, Sir Walter Hotel, Raleigh, N. C.
12-13 PEA Electrical Equipment Committee, Edison Building of Philadelphia Electric Co., Philadelphia, Pa.
12-13 EEI Commercial Cooking Conference, Sheraton Hotel, Chicago, Ill.

1953

MAY

13-15 Pacific Coast Electric Association Annual Convention, Hoberg's, Lake County, Calif.
14-15 IES East Central Regional Conference, Hotel Lord Baltimore, Baltimore, Md.
14-15 PEA Hydraulic Power Committee, York, Pa.
14-15 PEA Transmission and Distribution Committee, Skytop, Pa.
18-19 PEA Prime Movers Committee, Beachcombers Resort Hotel, Erie, Pa.
18-19 EEI Prime Movers Committee, Hotel Chase, St. Louis, Mo.
18-19 IES Southern Regional Conference, Sedgefield Inn, Greensboro, N. C.
18-20 National Committee for Utilities Radio, Annual Meeting, Jung Hotel, New Orleans, La.
20 EEI Industrial Power and Heating Section, Ft. Sumter Hotel, Charleston, S. C.
21-22 PEA Systems Operation Committee, Harrisburg, Pa.
21-22 EEI Industrial Power and Heating Section Joint Meeting with Southeastern Electric Exchange Industrial Power Sales Conference, Fort Sumter Hotel, Charleston, S. C.
25-26 IES Great Lakes Regional Conference, Syracuse Hotel, Syracuse, N. Y.
25-27 EEI Meter and Service Committee, Wentworth-by-the-Sea, Portsmouth, N. H.

JUNE

1 PIP Steering Committee, Hotel Traymore, Atlantic City, N. J.
1 EEI Industrial Relations Committee, in conjunction with EEI Annual Convention, Atlantic City, N. J.
1- 4 EEI 21st ANNUAL CONVENTION, ATLANTIC CITY, N. J.
15-16 EEI Hydraulic Power Committee, Multnomah Hotel, Portland, Ore.
15-19 ASCE Convention, Hotel Casa Blanca, Miami Beach, Fla.
21-23 Wisconsin Utilities Association Accounting Section Convention, Schwartz Hotel, Elkhart Lake, Wis.
21-24 Michigan Electric Association Annual Meeting, Mackinac Island, Mich.
25-27 CEA Annual Convention, Manor Richelieu, Murray Bay, P. Q.

JULY

17 EEI Industrial Relations Committee, in conjunction with Personnel Section, Wisconsin Utilities Association, Green Bay, Wis.

AUGUST

5-8 International Association Electric League's 18th Annual Meeting, Fairmont Hotel, San Francisco, Calif.

SEPTEMBER

14-18 IES National Technical Conference, Commodore Hotel, New York, N. Y.
18-19 Maryland Utilities Association Fall Conference, Cavalier Hotel, Virginia Beach, Va.
20-23 Rocky Mountain Electric Association 50th Annual Fall Convention, Broadmoor Hotel, Colorado Springs, Colo.
21-26 International Association Electrical Inspectors, Silver Jubilee Meeting, Edgewater Beach Hotel, Chicago, Ill.
27-30 Controllers Institute of America, Annual Meeting, Hotel Statler, Boston, Mass.

OCTOBER

12-13 Iowa Utilities Association Management Conference, Hotel Fort Des Moines, Des Moines, Iowa.
19-21 ASA 4th National Standardization Conference and 35th Annual Meeting, Waldorf-Astoria, New York, N. Y.
19-23 ASCE Annual Convention, Hotel Statler, New York, N. Y.
21 PIP Steering Committee, Edgewater Beach Hotel, Chicago, Ill.
22-23 PIP Workshop, Edgewater Beach Hotel, Chicago, Ill.

Annual EEI Convention to Consider Many Challenging Phases of Industry Operation

IN a diversified and comprehensive program, the Twenty-first EEI Convention, to be held in Atlantic City, N. J., June 1-4, will consider many of the most challenging aspects of electric company operation, major phases of which will constitute the subject matter of several general sessions.

The convention program, which is designed to help electric company executives prepare today for the problems with which they will be confronted tomorrow, will be presented in six general sessions. Four of these will be devoted, respectively, to finance and investment; leadership and management; sales, public relations, and advertising; and the use of atomic energy in the production of electric power.

Included among the topics to be considered at the two remaining sessions will be labor's interest in free enterprise, area development, improving state-wide power supply, and the economics of energy transmission.

D. S. KENNEDY
Chairman, Convention Program Committee

To discuss these and other subjects will be a group of speakers eminent in their fields of endeavor and representative of various segments of business, professional, and public life.

The Convention Program Committee, composed of Chairman D. S. Kennedy, President of the Oklahoma Gas and Electric Co., Harllee Branch, Jr., President of the Georgia Power Co., and Walker L. Cisler, President of The Detroit Edison Co., is rapidly completing arrangements for the program, which will be described in greater detail in next month's BULLETIN.

The first of the convention's general sessions will be held on Monday afternoon, June 1; the second and third on Tuesday morning and afternoon, June 2; the fourth and fifth on Wednesday morning and afternoon, June 3; and the sixth on Thursday morning, June 4. All sessions will take place in Atlantic City's Convention Hall.

For the convenience of guests who arrive in Atlantic City early, registration will begin on Sunday and will continue on Monday morning at points to be designated later. Monday at noon a registration booth will open at Convention Hall and will remain open during the rest of the convention. There will be a registration fee of $10.00.

Admission to business sessions and social functions will be by convention badges and pins obtainable upon registration, which guests are urged to complete at their first convenience after checking in at their hotels. Information booths will be provided at the registration points.

HARLLEE BRANCH, JR.
Member, Convention Program Committee

WALKER L. CISLER
Member, Convention Program Committee

Atlantic City, world famed for its convention and recreational facilities, offers ample opportunity for relaxation after a busy convention day. The city's temperate summer climate and seaside setting should not only provide a suitable background for constructive thinking and planning at business sessions but should also prove conducive to the after-hours exchange of ideas and information which enhances the value of Institute meetings.

Social Functions

Several social functions have been scheduled, the first of which will be the President's Cocktail Party, to be held at the Hotel Chalfonte-Haddon Hall on Monday evening from 5 to 7.

On Tuesday noon there will be a luncheon for the ladies, at which Bendix Home Appliances, Division Avco Manufacturing Corp., as host, will sponsor a fashion show. No organized social activities are planned for Tuesday night.

Wednesday at noon the Institute will welcome the ladies at a luncheon, and that evening three buffet dinners for members and guests will be held in the Claridge Hotel, Marlborough-Blenheim Hotel, and Dennis Hotel. The times of the dinners will be staggered in order to suit the convenience of those in attendance.

Following the dinners, Fred Waring and his Pennsylvanians, appearing through the courtesy of the General Electric Co., will entertain delegates. A special feature of the evening will be presentation of the Charles A. Coffin Award.

As in past years, the convention will have its own daily newspaper. Published through the courtesy of *Electrical World*, it will appear on Tuesday, Wednesday, and Thursday and will report the general sessions, carry official notices and include a roster of convention registrants.

Delegates are urged to make their hotel reservations as quickly as possible in order to secure their desired accommodations, inasmuch as a large attendance is expected at the convention. The Official Application for Hotel Accommodations may be obtained upon request to the Institute, and additional information on housing may be secured from M. H. Yarnall, Housing Bureau, 16 Central Pier, Atlantic City, N. J.

Preliminary Work on Light's Diamond Jubilee Initiated Following Approval of EEI Board

PRELIMINARY work on programs and materials for next year's Diamond Jubilee of Light has been initiated following approval of Jubilee aims by the Institute Board of Directors, it has been announced by George H. Blake, Chairman of the Light's Diamond Jubilee Program Planning Committee. Mr. Blake, who is President of Public Service Electric and Gas Co., also stated that N. W. Ayer & Son, Inc., have been selected as public relations consultants for the Jubilee.

In paying tribute to Thomas Edison's invention of the first practical incandescent electric lamp, which launched the electric era in 1879, the Jubilee will also give major attention to the unsurpassed growth and progress resulting from the subsequent development of electric service.

Associated with Mr. Blake on the Jubilee's policy-making committee are Ralph J. Cordiner, President, General Electric Co.; B. L. England, President, Edison Electric Institute, and President, Atlantic City Electric Co.; P. H. Powers, President, West Penn Power Co.; Gwilym A. Price, President, Westinghouse Electric Corp.; and J. R. Whiting, President, Association of Edison Illuminating Companies, and Chairman of the Board, Consumers Power Co.

Under the Planning Committee, and representing a wide range of electrical industry interests, is a Jubilee working committee with responsibility for developing programs and materials and making them available to electric companies.

To be observed on a national and local scale, Light's Diamond Jubilee will enlist the cooperative efforts of electric companies, manufacturers, and other interested electric industry groups and organizations, with particular emphasis on activities conducted by local companies in their own communities.

Safety Merit Awards

FROM the time of their establishment in 1942 to March 15, 1953, EEI Safety Merit Awards recognizing 265,034,059 man-hours of accident-free operation have been authorized for electric companies, combination gas and electric companies, or groups within such companies where a majority of the employees are engaged in electric operations.

After the last periodic listing of award recipients was compiled for the BULLETIN on December 1, 1952, four additional awards were authorized before the end of the year, bringing the total man-hours of safe operation honored in 1952 to 41,688,608. These four awards were made to:

Northern States Power Co.
Faribault Division—1,023,000
Alabama Power Co.
Construction Department—1,365,078
Mobile Division—1,062,611
Gadsden Steam Plant—1,000,000

In the first two and one-half months of 1953, Safety Merit Awards have recognized 24,422,354 man-hours of accident-free operation, more than half as many man-hours as were honored in the entire year of 1952. The companies contributing to this record are:

Consolidated Edison Co. of New York, Inc.
Substation Operation Department—1,375,500
Holder Maintenance and Painting Bureau—2,074,650
Consumers Power Co.
Flint Division—1,555,939
Entire Company—1,173,552
Duquesne Light Co.
All Operations—1,752,500
Colfax Power Station—1,003,663
Green Mountain Power Corp.
Entire Company—1,065,377
Kansas Power and Light Co.
Parsons Division—1,003,844
Louisiana Power and Light Co.
Entire Company—1,187,938
Monongahela Power Co.
Operations Department—1,154,263
New Orleans Public Service Inc.
Industrial Engineering and Utilization Department—1,004,782
Old Dominion Power Co.
Entire Company—628,800
Pennsylvania Electric Co.
Southern Division—2,754,870
Southwestern Gas and Electric Co.
Fayetteville Division—1,117,919
Virginia Electric and Power Co.
Entire Company—1,088,608
Wisconsin Power and Light Co.
Portage District—1,014,860
Berlin District—1,020,413
Wisconsin Public Service Corp.
Entire Company—2,441,176

The Electric Industry in Perspective

B. L. England
President, Edison Electric Institute

An address before the American Power Conference, Chicago, Ill., March 26, 1953

ELECTRIC energy, universal and basic, is the same the whole world over. But man's approach to the development of this basic energy for his purposes varies widely. In this country, we of the electric industry have as our foremost guide the principle of service. We have built a great tradition and great accomplishments on the idea that we must be able to supply electric service to anyone at any time for any use—ranging all the way from huge to minute operations.

Further, we seek new opportunities for electric service, from devices to make the individual American's home life more comfortable to applications which will strengthen the nation's ability to defend itself against attack. On this foundation of service in an atmosphere of freedom, we in the United States have built an electric industry which is far and away the greatest in the world, and which has been invaluable to our unparalleled standard of living.

In countries where a high degree of nationalization prevails, and economic freedom is curtailed, the idea of service is subordinated, if not lost. Instead of making every effort to expand power supply to meet all conceivable demands, as electric companies do in America, governmental bureaus show a strong tendency towards restricting demands, rather than giving sufficient acceleration to expansion of supply. Further, the available electricity is channeled to suit governmental convenience, and the individual loses his freedom to use electricity as he pleases.

Soviet Russia, the second largest electricity producer in the world, but with only one-fourth of the United States' total generation, is an example of this situation—extreme, it may be argued, but representative, nonetheless. In the USSR, electric power is an extension of the power of the dictatorship.

Most of the electricity generated goes to armament manufacture and heavy industry as an essential ingredient in keeping the Communist empire together. The idea of service in providing electricity to the Russian people is non-existent. They get meager rations of electric energy which cannot be exceeded, on pain of sharply multiplied rates and a complete cut-off of supply.

American power is a servant of a free society, not a tool of a master government. This, it seems to me, is a proper premise on which to base a quick perspective of the electric industry.

Remarkable Growth

In looking back from our vantage point in the American electrical age, it is clear that our industry has moved forward at a remarkable pace since Edison's Pearl Street Station began operation in 1882. The engineering accomplishments of that period established the foundations of electric service and made possible the development of an industry to supply it.

By the turn of the century, electric power enterprises dotted the country, struggling to provide 24-hour lighting to a few hundred thousand customers. Countless problems involving dynamos, circuits, transformers, pole lines, meters, and other equipment and considerations had been dealt with by engineers of skill and imagination, but there remained a forbidding array of technical obstacles to be cleared away.

An important step came in 1900 with the adoption of the turbine, and with it came the unending search for metals and boiler designs to permit the use of higher, more efficient temperatures and pressures. Improvement in power generation methods and equipment was matched by advances in getting the energy produced to the customer. Transmission voltages went from the 1890 figure of 4000 to 132,000 by 1910, and in 1923 the 220,000-v level was reached. Distribution techniques and equipment were evolved, improved, and standardized to bring service dependably and economically to consumers in every corner of the land.

With the 1920's came increased financial support, which stepped up the translation of technical accomplishment into the building of generating stations, the construction of miles and miles of power line, and the installation of the countless items of equipment which spell service in actual kilowatts and kilowatt-hours. By 1930, the electric industry had over 24,500,000 customers, more than double the total ten years earlier; its capacity was over 32,000,000 kw, two and one-half times the figure at the beginning of the decade; and the industry's 1929 generation of 92,000,000,000 kwhr, the high for the decade, was better than twice 1920's production.

During the 30's the industry did its utmost to keep the gains which had been made from being swept away by economic hysteria and political expediency. When the entire world was engulfed in war, the United States electric industry was a strong and unfailing source of the electric energy making possible the miracles of production without which victory could not have been achieved.

In the decade between the close of World War II and the end of 1955, the electric industry will have more than doubled its 1945 generating capacity, achieved after 63 years of progress. Generation, too, should be more than twice the 222,000,000,000 kwhr of 1945, approaching the half-trillion mark in 1955. Last year, nearly 400,000,000,000 kwhr were produced for 48,500,000 customers with a multitude of uses. Compare this, if you will, with the 1902 generation of 2,500,000,000 kwhr, used almost exclusively for lighting, produced by a total utility plant of some 1,000,000 kw, which any one of a number of modern generating stations are being designed to surpass.

Along what lines will we advance in the years ahead? The record shows that the electric industry's development has been based primarily on technical achievement, and there is every evidence that engineering initiative and accomplishment will continue as the foremost factors in future progress.

Engineering conference sessions give example after example of the ability and thoroughness being brought to technical problems and improvements. Even aside from the engrossing prospects of atomic and electronic development, there is a multitude of opportunities for original contribution which might very well dumbfound those who have come before. And never before have scientists, engineers, and technical people been held in such high universal esteem as they are now—a tribute both to what they have accomplished in the past and to their capacity for bringing about even greater wonders in the future.

Primary Responsibility

I am convinced that primary responsibility for the industry's continued success lies with the engineers of today and tomorrow, but it should be emphasized that this responsibility goes far beyond purely technical limits. For that reason, I think we have arrived at a time for a New Look—not in the sense of style or appearance, but as a positive act of getting our bearings and seeing ourselves and our industry whole.

First, we know that through progress already made, practically every activity in the complex fabric of modern civilization relies at some point on electric service. I believe it could be demonstrated that the development of ways in which electricity is able to serve is now practically synonymous with the forward steps of American living—whether these advances involve greater production on the farm, more efficient manufacturing, or increased comfort in the home.

We can, by logically extending the scope of services already being rendered and immediately in prospect, foretell that the farm using 50,000 kwhr annually, nearly 18 times the present average, will become commonplace; that electrically operated automatic factories will be able to perform production marvels; and that homes with all-electric kitchens, color television, and year-round climate control, will be using 25,000 kwhr annually, about 12 times today's average.

This is dazzling enough, both in terms of service to the American people and of opportunity to the electric industry. But a look at our industry's record shows that this forecast is based on the logic of already recorded achievements, and does not take into account what may result from the exercise of free imagination in the years to come. We must remember always that our whole industry is actually the development of what was once considered a wild figment of an individual imagination, and we must be prepared to be surprised by things to come.

To jog the imagination, I refer to the handsome advertisements inserted in a number of national magazines by the General Electric Co., now celebrating its 75th anniversary. Such developments as the 70 mph cold-strip-mill drive, the heat pump, X-ray thickness gage, fluorescent street lighting, food-waste disposer, electric furnace, electric blanket, and the ultra-high-frequency television transmitter are among the many applications illustrated. How many of these were thought of 25 years ago, much less dreamed of back when Edison was starting his work on the incandescent light?

So we must look at today's electric industry as the concrete, multi-billion-dollar embodiment of what was once a most fantastic improbability. The miracles of service now being performed—and being taken for granted—were unthinkable not so long ago.

Future Realities

The rich vein of present improbables which may become future realities is something we should not disregard. In the electric industry, we pride ourselves, and rightfully, on our careful planning to meet expected electrical needs years in advance. But one of the reasons we have been successful in this is that we have not allowed ourselves to be bound by preconceived notions or limitations.

It follows from what we have already seen that the growth of electric service and the growth of the industry that provides it are inseparable. This is a fundamental which puts a premium on the continued exercise of free imagination and initiative in devising new and better ways for electric power to serve America, if our industry is to move to heights that will seem as incredible to us now as our present progress would probably seem to our predecessors.

An invigorating and challenging prospect is thus presented, and hard work will be needed to achieve it. Primarily through our own efforts, we of the electric industry have attained a place of unique responsibility for the progress and welfare of the nation and of every person in it. Everything we do should be aimed at continuing our proper fulfillment of that trust.

American power's character and contributions, resulting from sound leadership and a high level of imagination and skill in such specialized fields as engineering, sales, finance, and administration, have also been greatly influenced by the industry's deep sense of obligation to the American people, who have wholeheartedly accepted electrical enterprises as beneficial segments of a free economy serving a free society.

Quality of Leadership

To assure our future success, whatever era we enter, these considerations will require more careful attention than ever before. Particularly vital in its effect on all the large and small elements involved in utility operation is the quality of leadership.

Despite what I have said about the electric marvels which may come in the future, I firmly believe that never will an electronic brain be able to take the place of the kind of leaders we must develop. Their major concern will continue to be people—the people their organizations serve, the people who are the owners, the people who are the operators.

It has been painfully thrust upon our attention in recent years that human values cannot be taken for granted. In an age of material miracles of production and service

which have gone far to make it possible for man to reach consistently higher levels of well-being, we have also seen the rise of governments and mechanistic philosophies which turn these developments into the tools of man's enslavement and degradation.

In view of such trends, electric industry management may, in its coming era, emphasize as never before the human values which electric service can enhance. Such an emphasis could have a significant role in forestalling any possibility that American power and its increasing multitude of applications might be set against the service of human freedom and opportunity by governments or men.

As the scope of his operation broadens, as the welter of technical and specialized considerations and problems becomes more numerous and complex, the management man must never forget his relationship to the people of his organization, his community, his nation, and its way of life.

This may have a theoretical sound, but it has some very practical applications. The increasing emphasis on area development programs aimed at full utilization of community resources and at making other local improvements shows that management is increasingly aware of the electric company's stake in its community. As we all know, an electric utility cannot move away from conditions it does not like. For its own success, it must serve a growing, successful community. Consequently, the utility has a natural role as a leading citizen in any efforts to improve local conditions.

Corporate Citizenship

On the national scale, we have had several examples of how electric companies are prepared to discharge their responsibilities as good citizens. Late in 1950, the five-company Electric Energy, Inc., was organized to build a 1,000,000 kw steam station to serve an Atomic Energy Commission plant. Just last year, 15 electric companies formed the Ohio Valley Electric Corp. to construct 2,000,000 kw for another huge government atomic energy installation.

In the field of natural resources, perhaps the most impressive electric company effort is the Niagara Falls redevelopment program, offered by five New York State companies for Congressional approval.

Such positive plans and accomplishments not only have value in themselves, but are the best kind of evidence to prove that individual enterprises in a free economy can carry out large-scale projects for the benefit of all, with tremendous savings of taxpayers' money.

In this period of big government, people are more and more favorably impressed by electric company attitudes and actions along these lines. Disillusioned as they have shown themselves to be with all-pervading government operation, Americans welcome programs and accomplishments which demonstrate that their economic system has the vitality to undertake such natural resource developments, and that there is no need to sacrifice freedoms or tax dollars to a centralized bureaucracy for them.

The people have indicated that they favor reducing the Federal debt, reducing expenditures in future Federal budgets, getting additional property on the tax rolls to spread the cost of government as widely as possible, and getting the Federal government out of business.

The desired results enumerated above would not be accomplished simply by transferring Federal projects to a regional governmental agency or authority. It still leaves the government in business. Such action would place in the hands of a few individuals, without the control of Congress, authority to engage in extensive tax-free business at the expense of the Federal government. It would create a situation where a tax-free agency, using Federal funds, could extend its activities far beyond any government expansion in business heretofore witnessed.

I believe that if one thinks through this economic political question, he must see that unless Americans rely upon private enterprise and exert themselves to make it serve the best interests of the people, our country cannot indefinitely maintain individual freedom of choice. It is a responsibility that rests upon individual initiative fully as much as it does upon the elected representatives of the people.

Consideration of such far-reaching examples of responsibilities of citizenship brings us back to the all-important human factor—quality of leadership.

Without going into detail on the qualifications of a leader, I should like to say that in my estimation, the most important consideration in the selection of a top management man is character. He will not be a small or petty individual. He will demonstrate conscientious determination and capability in carrying out company, community, or national responsibilities. It will be instinctive with him to choose the honorable course, whether a given situation is difficult or not. He will have a full and human comprehension of the significance of each part of his organization's operation to its overall contribution.

These basically spiritual or moral considerations have very definite practical value. The example which such a manager sets will have a far-reaching and salutary effect on everyone he leads. A man of integrity and worth finds it easier to maintain a wholesome balance between the interests of customers, employees, stockholders, and public, because they respect him. In these days of large and complicated organizational structures, many a corporation rises or falls in the esteem of the public and others, with consequent effects on company success, as a result of personal evaluations of the character attributes of the top manager.

Inverse Ratio

In viewing the electric industry, we find that the qualities of leadership and technical and specialized excellence which have advanced electric service through the various eras of its development have produced a remarkable economic accomplishment. Consistently, throughout the industry's history, the more valuable electric service has become to the progress of American civilization, the lower has been the price paid for it by the users benefited.

The importance of electric service is in no way reflected by its price. Seventy years ago, when Edison started his Pearl Street Station, electric current for lighting was competitively priced with gas at the

equivalent of 25 cents per kwhr. In 1952, average revenue per residential kwhr was less than one-eighth of the preceding figure, reaching a new low of 2.76 cents. This does not take into account the tremendous difference in purchasing power of the penny of 1882 and its weakened 1952 descendant.

With electricity accounting for less than 1 per cent of average household expenses and amounting to only about six-tenths of 1 per cent of the value of manufactured products, the actual cost of energy to the user is far less important to him than the service he gets. But to assure him that he will get good service, it is essential to the electric company that adequate rates be allowed by the regulatory commissions.

As Virginia State Corporation Commissioner H. L. Hooker pointed out at a recent EEI Convention, "The customer should pay for good service and receive it. Poor service at any price is high." Commissioner Hooker also said, "It cannot be seriously questioned that the earnings of the power industry should be kept at a level high enough to attract sufficient capital to the industry to meet its reasonable demands. This is essential for our economic welfare. It is necessary for the proper protection of the public interest, and it is not adverse to the interest of the rate payer. It is the duty of the regulatory commissions to exert their best efforts to keep all utilities at all times in a safe and sound financial condition."

He noted that, in his experience, people complain about poor service more readily than about rates. They are willing to pay reasonable rates, if the service is good. An insufficient return to a utility sooner or later means a lessening of the service being rendered to customers.

But a lessening of service may arouse customer complaints and political pressure which may make acquiring proper rates more difficult. A vicious circle of insufficient rates and even poorer service may be joined with ultimately disastrous results.

The importance of the right price for electricity does not lie in actual cents or fractions of a cent, but in the effect the wrong price may have on the service of the public. Both utility management and the commissions share the burden thus imposed.

There has been gratifying evidence during the postwar inflationary period that this responsibility has been accepted properly both by managements, who saw that their financial structures needed strengthening to carry out the enormous expansion of facilities required to meet electricity demands, and by the commissions, who showed a sound appreciation of the situation.

From 1946 through the first 11 months of 1952, according to EEI tabulations, there have been a total of 348 applications for rate increases, involving 174 companies. Of the 348 applications, 308 have been granted, 26 are pending, seven were withdrawn, and seven denied.

As we go forward with new construction, still required on a record-breaking scale, the alertness of electric companies to their financial needs, and the sound decisions of the commissions on the basis of the facts will continue to have great significance for the industry's future.

Developing Over-all Understanding

Earlier, I remarked that this was a time for a New Look. I have tried, in this necessarily sketchy perspective, to point out some aspects of the electric industry's past and future which might be considered in such a look. Now I want to explain why I think everyone in the industry should pause, re-examine what he sees around him, and evaluate what he sees, for himself as an individual, for his company, and his industry.

It is becoming clear, as we move into the future, that any single individual is going to have difficulty in fathoming every one of the rapidly multiplying developments occurring even in his own field. More serious still, it is becoming even more difficult for the individual to keep up with everything of significance occurring in his own company, much less in his industry.

And yet we must recognize that, as electric utility operation becomes more and more complex, it becomes increasingly vital that everyone in the industry have as clear an understanding as possible of the principles on which electric service has been built and of his role in upholding them.

How are we to solve this dilemma? First, we must attract and train young people of the highest attributes and talents, who are capable of excelling in their special fields, yet have the breadth of vision to acquire a sound, over-all understanding. Then we must make sure that we give these carefully selected and trained people of promise the scope to develop themselves and realize to the full the contributions they are able to make.

We who have the task of guiding today's electrical progress towards tomorrow have a particular responsibility towards those who will have to be ready to lead in the future. We must help their capabilities to grow and mature, and to do this effectively, we must make sure that they have a widening field in which to work, to try their strength, and get the feel of leadership. The potential which these developing leaders must have cannot be confined to organizational blind alleys or departmental corners through neglect, apathy, or short-sightedness.

Ours is an industry which prides itself on the increasingly efficient use of its resources. It is essential, then, that our promising younger men be given every opportunity to broaden their experience and make contributions to the best of their ability and desire. To do otherwise is to be wasteful of our most essential resources—human intelligence and mankind's basic drive toward betterment.

The human equation is not new in our industry. We have solved it successfully in human terms in the past, and must continue to do so. Our industry has been built by the great minds of great men, and our power systems and all the marvels of service they render are but concrete manifestations of human thought and action. The developers of our industry have truly been giants in their concepts and attainments; we must have more than their equals to carry on the work they have so well begun.

I have no doubt that those on whom our industry's future will depend will come largely from the ranks of those with engineering training, not only because of the technical nature of the industry, but

(Continued on page 115)

Nuclear Power and State Power

Thomas E. Murray
Atomic Energy Commission

An address before The Economic Club, Detroit, Mich., February 9, 1953

IT is almost three years since I became a member of the Atomic Energy Commission. Shortly after assuming this responsibility, I met an old friend. He seemed to regard me more with an attitude of sympathy than with one of congratulation. Instead of felicitations, he proceeded to give me a short sermon on socialism as exemplified by the Atomic Energy Act of 1946. It was my friend's notion that the sooner the commission closed up shop and went out of business, the better. He feared that the commission's activity would be the greatest single factor pointing toward nationalizing all the primary means of production in the United States.

I must confess that since that time my friend's worry has, to some extent, become my own worry—at least until a month or so ago. While wrestling with a major production problem, I telephoned the president of one of our largest contractors. I asked to see him on a matter of grave importance to our atomic program. Bluntly he told me that he preferred not to do this unless I stated my business in advance. In his company, he emphasized, problems came up to him from his own organization and not directly, especially not directly, from Atomic Energy Commissioners. Putting down the phone with a vague sense of personal deflation, I could breathe a sigh of relief, for he had made it clear to me that the atomic energy industry had not been nationalized, at least not as yet.

"Seven (b) Day"

And one of the things that should keep it from ever being nationalized is the advent of a day I will call "Seven (b) Day." I take the designation from Section Seven (b) of the Atomic Energy Act, from which I quote: "Whenever in its opinion any industrial . . . or other nonmilitary use of . . . atomic energy has been sufficiently developed to be of practical value, the commission shall prepare a report to the President stating all the facts with respect to such use, the commission's estimate of the social, political, economic, and international effects of such use, and the commission's recommendations for . . . supplemental legislation. The President shall then transmit this report to Congress, together with his recommendations." It is obvious from this quotation how important "Seven (b) Day" is going to be. When that day arrives, the citizens of the United States, through their representatives in Congress, will have to decide whether or not to permit private ownership of nuclear power reactors.

Much has already been said about how near or far is the corner around which lies economic as opposed to feasible atomic power. I won't add to this speculation. But right at the start let me sound a note of caution. Although some interim legislation will be needed to permit private work to move ahead in the nuclear power field, don't look for any legislative panacea for our atomic industry's technological growing pains. There is an unhealthy tendency to sublimate the immense technical problems in the path of economic nuclear power into complaints about legislative obstacles. However, it is possible that introduction of interim legislation will raise some of the issues I intend to touch upon. In this event, the time for solution of these problems may be closer than is generally thought.

Leaving aside any detailed review of legislation, what I should really like to discuss is the ultimate place of peacetime power reactors in our economy. This is a matter of great importance, second only to our mammoth problems of keeping ahead of Russia in the atomic arms race. Our stockpile of atomic weapons must, as a matter of priority, be improved and expanded far beyond its present size. It has and must ever stand as a warning to any aggressor. This program we will continue with persistence.

However, international events have taught us that there is no long-term security in weapons alone. At best our present atomic stockpile permits us only to hold communism at bay. Our only long-term security lies in the ability of the free world to demonstrate conclusively that its ways of life—spiritual, social, political, and economic—are better for human beings than those offered by Soviet communism or by any other form of totalitarianism. One of the ingredients of success in this struggle for men's minds and hearts is the continued healthy development—politically and economically—of the virtues of the dynamic and free American system. On this, together with international good will and the vindication of spiritual values, western civilization depends. Industrial power is the heart in the body of that system, and our ethical and our religious heritage is its soul.

Government Monopoly

Although the work of the Atomic Energy Commission is carried on in plants operated by private contractors, we must not therefore conclude that everything is in order—that the new giant industry is safe in the camp of private enterprise. For the most part, the atomic energy industry, like nationalized British industry, is state owned and controlled by government employees. The recent English Labor Government, in nationalizing a number of industries, was simply putting into practice a fundamental principle of socialism, namely, state ownership of the means of production. Although the American justification for government ownership was not derived from the application of such a rigid dogma, nevertheless, the end result was, in an essential respect, identical—State monopoly.

That result is out of joint with the rest of the American industrial structure. It is even out of joint with one of the basic purposes of the Atomic Energy Act itself, which was

to foster free enterprise rather than any form of socialism. If a house is so built as to knock a man's head off when he enters it, it is built wrong. It has always seemed to me that socialism builds houses that way. In the socialist house the average man does not particularly need his head. Other people do his political and social thinking for him.

The Why of Socialization

It may be helpful to review the main reasons why, back in 1946, the young atomic energy industry was conditionally, and this word should be emphasized, was conditionally retained in government ownership.

The declaration of policy of the Atomic Energy Act reads in part: "The effect of the use of atomic energy for civilian purposes upon the social, economic, and political structures of today cannot now be determined. . . . Therefore, any legislation will necessarily be subject to revision from time to time. It is reasonable to anticipate, however, that tapping this new source of energy will cause profound changes in our present way of life. Accordingly, it is . . . declared to be the policy of the people of the United States, that, subject, at all times, to the paramount objective of assuring the common defense and security, the development and utilization of atomic energy shall, so far as practicable, be directed toward improving the public welfare, increasing the standard of living, strengthening free competition in private enterprise, and promoting world peace."

A socialist can derive no comfort from this statement of legislative purpose. It emphasizes peacetime and civilian use, as well as military or governmental use. But it emphasizes too the element of the unknown which then seemed to justify national ownership as a temporary expedient. As the late Senator McMahon put it, "When a pushbutton may destroy a city, can we afford to leave such pushbuttons in private hands? If not, then we cannot allow private persons to own the facilities for producing fissionable material." But what was unknown back in 1946, when the Senator was speaking, is not nearly so unknown today. The simple pushbutton ideas current then have lost most of their plausibility.

Moreover, the 1946 fears that the effects of atomic energy would be so revolutionary that only government ownership could control its impact on business and community life have not been borne out by subsequent events.

Nor has history warranted the assumption that only by government monopoly could secrets be kept and security preserved. Heartbreaking instances of espionage in atomic energy programs demonstrate that government control is not a guarantee of secrecy. Security is and will continue to be a serious problem as long as the cold war continues. However, the extensive declassification which has already become possible points to the strong probability that private ownership of power reactors will be quite compatible with most exacting standards of security for military purposes.

Perhaps one of the most appealing of all the arguments against private ownership back in 1946 was the question of international control. The contention was then made that transition from national to international ownership would be easier if no private rights had vested prior to the establishment of an international authority. But hope for the international control of atomic armaments has long since been dimmed by the uncompromising Russian attitude. All of us recognize today that in the absence of a minimum of goodwill and integrity on the part of the great powers involved, mere ownership of atomic energy facilities by an international commission would not suffice to insure the safety of the world.

If the common decencies are not respected, there can be no respect for international law. On the other hand, if some degree of goodwill and mutual respect can be established, then it is quite possible that actual international ownership may not be an essential part of an international control plan.

But I think that the argument on "Seven (b) Day" that will take on real momentum and significance follows a different pattern. It will be based on the theory that since the atomic energy industry was developed and financed by taxpayers, it should be entirely for the account of the general public rather than for the profit of individual companies. The trouble with such an argument is that it falsely assumes that profit to private enterprise confers no benefits upon taxpayers. It lays down the class-conscious and demonstrably untrue postulate that the interests of business units are inevitably or generally opposed to those of citizens. Such an argument also neglects the fact that business enterprises are, themselves, large taxpayers. It forgets that private industry is contributing an indispensable industrial "know how" to the harnessing of nuclear power, as well as adding tremendous technology and the invaluable services of trained and skilled personnel. And finally a most important factor: increased private profits and wages, based on increased production, imply over-all benefit to the nation.

Other factors take equal rank with the ability of government to finance the atomic program. Not least among these are the knowledge and techniques of scientists and the productive and technological facilities of American industry. Dollars and scientists without industry could never have produced anything but a paper bomb.

A Healthy Doubt

Fortunately, in this country there is a healthy doubt respecting the claim that exclusive government ownership of any segment of our economy results inevitably in the greater public benefit. Government ownership as such is an abstraction. You can't make a big problem easier to handle by turning it over to the State.

However, let me hasten to add that, although I hope that "Seven (b) Day" will permit private ownership of reactors, I by no means advocate excluding government operations in this field. The development and ownership of power reactors by industry is consistent with development and ownership by certain branches of government of power reactors to meet specific needs which only the government can afford to meet.

Economists and businessmen can do much to make the plans and recommendations of "Seven (b) Day" more realistic and effective. They must become more informed about the atomic energy industry. They can

and they should participate actively in its program. The comforting alibi that secrecy prevents such activity and understanding is becoming less and less valid as declassification process continues. It is not enough that companies contribute a few technical men to some special phase of the development of nuclear energy. The times require an understanding by industry's top management of the over-all revolutionary facts of the atomic age. This knowledge will enable intelligent participation in formulating needed and proper legislation. If legislative changes are molded only by the considerations of one or two segments of business, it will be only by coincidence that the over-all national interest will best be served. Only a thorough participation by all segments of our people will give promise of legislative changes of lasting benefit. And at least part of the understanding of the atomic energy panorama must be derived practically. In this connection, I hope our commission can start, in the near future, regular orientation programs, in appropriate fields, similar to those of the armed services.

And I conceive it to be one of the special responsibilities of industrial management, in the atomic age, to lend some of its talent directly to the commission. We have been fairly fortunate in recruiting technical personnel. But time and time again we have been turned down in our attempts to interest administrators and executives. I am aware of the financial sacrifice called for in giving up a few years to our work. However, I believe firmly that anyone who volunteers will be back in industry better equipped, more fully rounded out, and a much more valuable man because of his exposure to atomic activities.

Dramatic Private Effort

Once economists and businessmen know the problem, practically and theoretically, they will be in a better position to make the recommendations that "Seven (b) Day" should provoke. Meanwhile, increased knowledge will provide opportunities to reduce the boundaries of government ownership little by little.

Let me illustrate by an actual example. In the fall of 1950, we needed a new power supply of the order of a million kilowatts for our Gaseous Diffusion Plant at Paducah, Ky. Only the Tennessee Valley Authority, a government-owned project, submitted a bid. I was not willing to accept the assumption that private electric companies were not interested and could not successfully compete. And so on November 8, 1950, the day when the commission formally decided to give this business to TVA, I determined to get a competing bid from private enterprise.

A group of executives from private electric companies met with me on November 13. They were asked to submit a proposal. This they did eight days later, despite the fact that the congressional budget wheels had already started to turn on the theory that the whole load would be supplied by TVA. The new proposal turned out to be so attractive that on December 17 our commission formally reversed its previous action and awarded half the power load to the private group, now known as Electric Energy, Inc.

In all my business experience I have never seen a more bold, energetic, or dramatic effort put forth in a shorter time. The new plan required commitments, for private financing, amounting to $100,000,000. It involved an engagement to supply approximately 500,000 kw over a 25-year term. And all of this was done in less than one month.

The Electric Energy, Inc., pattern has established a nation-wide precedent. It was followed only a few months ago and on a much larger scale. An entirely new combination of some 15 private electric companies has been awarded the contract to supply some 2,000,000 kw needed for our new Portsmouth, Ohio, Plant.

These, I think, are good examples of the ways in which the boundaries of government ownership can be contracted. Events have so far failed to convince many that whenever a task can be satisfactorily achieved by free enterprise, the fulfillment of that task ought to be left to free enterprise. Businessmen believe this, however, because they believe in liberty and the right of free persons to make decisions for themselves.

Back in 1946, the most articulate spokesmen for government monopoly were groups closely associated with the atomic program. Undoubtedly, when "Seven (b) Day" arrives many inexperienced in economics and politics, will again urge retention of State ownership. The scientist or the businessman who is so absorbed in his own affairs that he pays little attention to anything else is apt to be less than alert before the encroachments of political power. This is especially true where he is indifferent to those ultimate values on which liberty depends and for the sake of which the human race exists.

Idol Worship

There is a danger of making both science and business a kind of idol worship. No nation accomplished greater feats of scientific and technological organization, or boasted more scientists and technicians, than did Germany immediately before the last World War. Yet neither the businessmen nor the scientists in Germany stopped Nazi tyranny. How can we account for this? They had blind spots which we, learning from their sad experience, must never permit to obscure our vision.

Too many economists, businessmen, scientists, and politicians fail to answer the crucial question: what is the essential difference between our system and that of any totalitarianism? Is the essential difference between the American system and that of Hitler or Stalin a mere matter of science, technology, or political and economic techniques? Of course not. Science and technology are as available to tyrants as they are to us. So are the techniques of economics and politics. When science, technology, and organizational techniques are not humanized by the right spiritual outlook, they become cold and ruthless. Organization of science and industrial technology is the most potent weapon of the modern mass state. Indeed, the modern tyrants have already borrowed our ideas of organization without curbing them by our love of freedom and our love of liberty. They depersonalize our efficiencies by political organization which lacks our Bill of Rights and our religious and ethical purposes and restraints.

It is in the area of such purposes

(*Continued on page* 128)

The Credit Picture

Results of Survey Conducted under Joint Supervision of the Credit and Collection Committees, EEI Accounting Division and AGA Accounting Section

IN this latest Credit Picture, the sales, outstanding, and net charge off have been segregated because of the known fact that industrial customers are generally large consumers, require little collection effort, usually have established pay habits, and seldom result in a charge off. It is believed that to include them in the statistics distorts the trend which the Credit Picture illustrates.

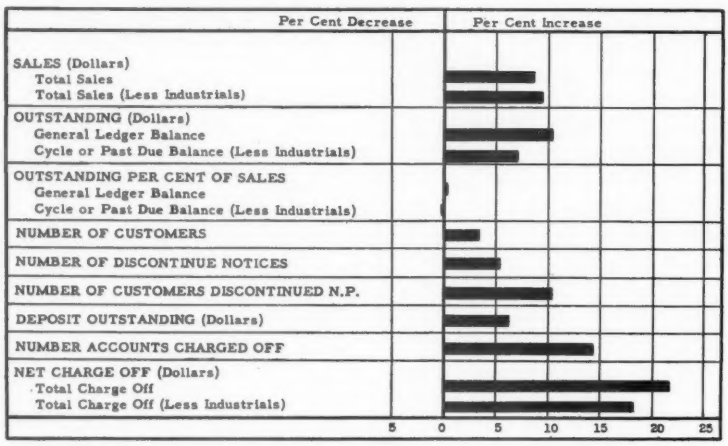
However, the accompanying chart, which graphically indicates the gradual increase in the per cent of net charge off to sales for the entire country, was necessarily based on total charge offs and total sales including industrials.

The Credit Picture shows that collection conditions throughout the United States have been generally less favorable during the last six months of 1952 than they were for the corresponding period of 1951. Charge offs have increased substantially, both in the number of accounts and in the dollar amount. This is a continuation of the trend that was shown in the Credit Picture for the first six months of 1952.

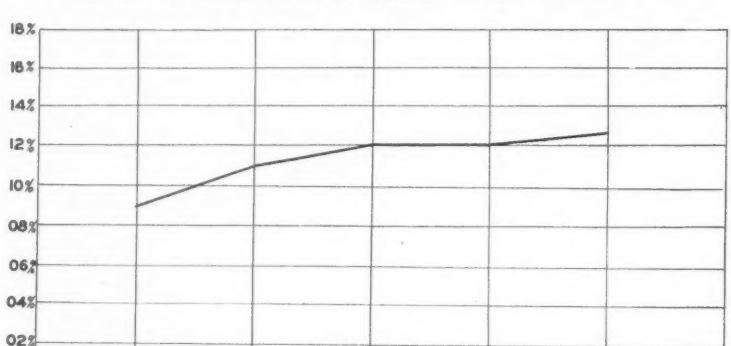
Sales continue to show an increase, as well as the number of customers on the line. However, the outstanding, as well as the number of customers discontinued because of non-

(*Continued on page* 112)

CREDIT AND COLLECTION EXPERIENCE OF U. S. ELECTRIC AND GAS INDUSTRIES
July 1, 1952-December 31, 1952, compared with same period for 1951


Per Cent Decrease
Per Cent Increase
SALES (Dollars)
Total Sales
Total Sales (Less Industrials)
OUTSTANDING (Dollars)
General Ledger Balance
Cycle or Past Due Balance (Less Industrials)
OUTSTANDING PER CENT OF SALES
General Ledger Balance
Cycle or Past Due Balance (Less Industrials)
NUMBER OF CUSTOMERS
NUMBER OF DISCONTINUE NOTICES
NUMBER OF CUSTOMERS DISCONTINUED N.P.
DEPOSIT OUTSTANDING (Dollars)
NUMBER ACCOUNTS CHARGED OFF
NET CHARGE OFF (Dollars)
Total Charge Off
Total Charge Off (Less Industrials)
5 0 5 10 15 20 25

PER CENT OF NET CHARGE OFF TO SALES—12 MONTHS ENDING:



REFLECTION OF THE CREDIT AND COLLECTION EXPERIENCE OF UNITED STATES ELECTRIC AND GAS UTILITIES—JULY 1, 1952, TO DECEMBER 31, 1952
Per Cent—Increase or Decrease over Corresponding Period—1951

	New England	*Middle Atlantic*	*East North Central*	*West North Central*	*South Atlantic*	*East South Central*	*West South Central*	*Mountain States*	*Pacific States*	*United States Total*
Sales (Dollars):										
Total Sales	+ 6.6	+ 6.0	+ 7.8	+10.4	+11.5	+10.5	+ 9.8	+ 9.7	+11.0	+ 8.5
Total Sales (Less Industrials)	+ 6.3	+ 7.2	+ 8.8	+ 9.4	+12.0	+13.2	+12.6	+ 8.5	+10.0	+ 9.4
Outstanding (Dollars):										
General Ledger Balance	+ 5.8	+ 2.9	+ 3.6	+ 8.8	+11.3	+ 7.5	+14.0	+20.6	+13.2	+10.4
Cycle or Past Due Balance (Less Industrials)	+ 6.3	+27.9	+ 3.8	+ 5.5	+13.4	+ 3.7	−21.6	+11.7	+ 7.6	+ 7.0
Outstanding (Per Cent of Sales):										
General Ledger Balance	+ 0.1	+ 0.4	− 0.7	− 0.1	0	− 0.3	+ 0.3	+ 1.7	+ 0.3	+ 0.3
Cycle or Past Due Balance (Less Industrials)	+ 0.1	+ 0.5	− 0.2	− 0.3	0	− 0.1	− 0.8	+ 0.2	+ 0.4	− 0.1
Number of Customers	+ 2.0	+ 1.7	+ 2.7	+ 3.6	+ 6.6	+ 5.7	+ 3.8	+ 4.4	+ 4.6	+ 3.4
No. Discontinue Notices	+22.3	+ 5.2	+15.7	+ 1.8	+ 6.1	+15.5	+ 5.5	+19.3	− 3.0	+ 5.4
No. Customers Dis. N. P.	+ 1.5	+ 5.2	+17.8	+14.7	+ 6.3	+ 1.6	+36.6	+17.0	+ 9.9	+10.4
Deposits Outstanding (Dollars)	+ 5.0	+ 9.3	− 8.1	+ 5.6	+11.1	+ 7.1	+ 5.4	+ 5.1	+ 1.5	+ 6.3
No. Accounts Charged Off	+14.9	+ 0.8	+18.5	+ 8.0	+13.3	+22.6	+19.1	+13.1	+15.6	+14.4
Net Charge Off (Dollars):										
Total Charge Off	+46.6	+ 6.8	+27.7	+ 7.5	+40.8	+10.2	+11.3	+ 8.1	+31.7	+21.5
Total Charge Off (Less Industrials)	+32.2	+21.7	+23.3	− 1.6	+25.1	+ 4.8	− 5.7	+25.8	+25.4	+18.3
Companies Reporting	8	9	16	8	8	5	7	5	7	73

Problem Drinking and Industry: Five Years with a Company Program

S. Charles Franco, M.D., F.A.C.P.

Associate Medical Director, Consolidated Edison Company of New York, Incorporated

An address before the "Problem Drinking and Industry" Conference, New York, N. Y., February 17, 1953.

IN December, 1947, the Consolidated Edison Co. decided upon a forthright approach to alcoholism and adopted a Company Procedure on Alcoholism to deal with the problem. We have recently completed five years of experience with this procedure and feel that it has been worth-while. It confirms our belief that industry can no longer consider alcoholism as exclusively a social and personal problem. Excessive absenteeism, decreased skill, poor production, and heightened accident rates resulting from chronic alcoholism are just as costly as similar losses from other diseases. Even more important is the fact that if alcoholism is unchecked in the individual, it can progress to the total loss to industry of an employee's skill and experience.

An Accurate Estimate

Perhaps the most important advantage of the Company Procedure on Alcoholism has been that it has given management a fairly accurate estimate of the extent of the problem. It has established an orderly means for the early recognition of problem drinking on the job. Also, through the procedure, the employee with a drinking problem has had his abnormal drinking behavior forcibly brought to his notice before it becomes critical, and he has been motivated to do something about it. The Medical Department has developed techniques to assist in the diagnosis and classification of alcoholism, and it has reached a realistic appraisal of rehabilitation procedures. Finally, everyone concerned with the employee having a drinking problem, his fellow workers, the union shop steward, foremen, executives, and even the physician, has learned that the greatest disservice that one can render the alcoholic is to cover up his deficiencies until he reaches such a critical stage that his chances for successful rehabilitation are problematical.

It is apparent that the alcoholics in business and industry are a relatively stable group until their drinking habits reach a serious stage in the last few years of their disorder. We feel they should more properly be classified as problem drinkers rather than as alcoholics. Some masquerade under other categories of illness. Others are hidden within departments for reasons of friendship, years of faithful service, ignorance, or the idea that there is no adequate treatment. This has given rise to the erroneous concept in some quarters that chronic alcoholism need not be considered a problem in industry.

We realize that statistics on the incidence of alcoholism in industry vary a great deal. Our own experience, over the past five years, leads us to place it at about 1.5 to 2 cases per 1000 employees per year, and in 1952 we listed 43 new cases with a drinking problem. The total number of cases in the five-year period ending in December, 1952, was 198, or nearly 0.8 of one per cent in our group of approximately 25,000 employees. By contrast, Doctor Jellinek of Yale has estimated the incidence in the adult population of the New York area at about 5 per cent. There is reason to believe that the real incidence in industry is probably 2 per cent, at least.

As physicians, we realize that alcoholism is a very complex problem because it combines psychological, physical, social, and moral factors, but there is sufficient evidence to indicate that alcoholism is a disease. In common with other sick people, the alcoholic or problem drinker cannot help himself without outside assistance. Our experience leads us to dissent with the constantly expressed opinion that an alcoholic can be helped "only if he wants to be." If we wait for this desire to develop, his illness may progress to a critical stage. We have found that our company procedure is a practical means of bringing the problem drinker to an early awareness of his illness.

From an industrial point of view, an employee is considered to have a drinking problem when repeated or continued overindulgence interferes with the efficient performance of his work assignment. Under our company procedure, the foreman and supervisor are considered to be in the best position to recognize the early signs of uncontrolled use of alcohol among men working under them. It is not the responsibility of the Medical Department to discover alcoholics. In fact, it is detrimental to the doctor-patient relationship to place the Medical Department in the role of a policeman.

Operation of the Procedure

The employee who disregards preliminary warnings by his supervisor and persists in overindulgence and abnormal behavior is placed on probation under the company procedure. He is first interviewed by his immediate supervisors. The union shop steward may be present at that time. The events leading to the situation are reviewed, and he is reminded of the consequences that may result from a repetition of his offense.

The personnel director is notified, and he in turn requests an examination of the employee by the Medical Department, to which is forwarded all the information at hand and on file. We are convinced that a complete and detailed report giving the entire story is of tremendous assistance to the physician in making his evaluation of the case. On the other hand, a report covering only an isolated instance of drinking is of little value. The employee may be reluctant to recount his history to the examining physician, but in discussing his version of the instances

related in the supervisor's report, the employee can give a fairly accurate picture of his real situation. At this stage the employee is known as an "A" case because he comes under the provisions of paragraph 3-a of the procedure on alcoholism.

The Medical Department has the responsibility of determining if the employee is, in fact, an alcoholic and of estimating the extent of the drinking problem. This examination is carried out by one of a small group of internists who have had special experience with alcoholism. We realize that such a complex condition as alcoholism may not allow simple categorical classification, but we have developed a functional classification which, while it has limitations, can assist the physician in the diagnosis of a drinking problem.

Types of Alcoholism

From a medical point of view, it is important to differentiate the excessive drinker and the psychotic person, who may manifest alcoholism as a symptom of his illness, from the chronic alcoholic. The excessive drinker as a rule does not have a problem with a personality disturbance and can be persuaded to cut down his drinking, especially if a valid reason for cutting consumption is found. The majority of these individuals will not be classified as actual alcoholics. Some may be rated as questionable alcoholics, and only the few who show a lack of control over drinking should be considered alcoholics. However, it should be realized that the individual who drinks heavily enough and long enough will inevitably develop new problems as a result of his excessive drinking. This in turn may cause him to seek relief from these new symptoms by recourse to more alcohol and may eventually lead to loss of control. We believe that this marks the point at which he crosses the line from excessive drinking to chronic alcoholism.

Alcoholism can also be a common symptom in the major psychoses such as schizophrenia and manic depressive psychosis. However, in these situations, the mental disease is the main problem.

Chronic alcoholics generally fit into several types but are not always easily defined. First, there are the psychoneurotic drinkers who constitute the largest of these types. They can best be classified as true alcohol addicts because compulsion to drink is usually present. They can be further subdivided into two groups: (1) primary psychoneurotic, those who had noticeably maladjusted personalities before they started drinking, and (2) secondary psychoneurotic, those who were not noticeably maladjusted before drinking caused a continuing problem. It is our experience that many of the secondary psychoneurotic alcoholics have their origin in continued excessive drinking which has led to the development of secondary problems. They constitute the bulk of alcoholics in industry.

Then, there is a second type who are classified as reactive alcoholics. These individuals ordinarily carry on very well, but the impact of an unusual situation, such as the death of a spouse or a change in job, which their personality structure cannot meet, may turn them to alcoholism. Their prognosis is usually good, and they often recover when they gain insight into their basic situation. This type of individual may be assisted in his adjustment by a change in job, but only a small percentage of problem drinkers can be helped in such a manner.

Finally, there is a third type classified as psychopathic drinkers who are characterized by a complete lack of responsibility to everyday living. They usually represent the late phase of alcoholism and they have reached the "end of the road," as it were. More rarely, a constitutional psychopath is also included in this group. They make up a large percentage of the recalcitrant alcoholics and present a great problem in treatment. Fortunately, their number in industry is small.

First Phase of the Procedure

Our experience under the procedure on alcoholism can be divided into two phases: first, from January 1, 1948, to December 31, 1951, and second, from January 1, 1952, when the facilities of a consultation clinic became available, to the present. The experience in the first phase was a step in the right direction, although it did not go far enough. The major shortcoming of the program at that stage was that medical facilities for adequate treatment were usually not available. It is small wonder that so many cases had a recurrence of the offense and were brought before a panel for adjudication. Sometimes it was only an interval of several months between probation and panel consideration. At this stage, the employee is known as a "B" case because he comes under the provision of paragraph 3-b of the procedure on alcoholism. In the "B" cases, further efforts for rehabilitation can be undertaken only if the panel recommends that the employee be retained in the company. In the first phase of the program a number of cases had their employment terminated, either by retirement or separation allowance, and occasionally by outright discharge.

Our follow-up experience to date on the original group which was treated under the first phase of the alcoholism procedure from January 1, 1948, to December 31, 1951, can be summarized as follows: There were 155 cases in this group, 61 under the "A" procedure, and 94 who suffered a relapse and came under the "B" procedure. Of the 94 "B" cases which came to panel review, only 18 cases were returned to duty. In the panel group of cases, the average age was 49 years and the length of service was 22 years. The loss to the company speaks for itself. However, for the total group the recovery rate was 79 out of 155 cases, or 51 per cent. It should be emphasized that the majority of these cases have been followed for more than three years and that the shortest period of observation has been more than one year.

Special Clinic Established

As we reviewed our experience, it became apparent that a special center for the medical treatment of alcoholism was a logical answer to the problem. The late Dr. John J. Wittmer had proposed such a plan for the treatment and rehabilitation of alcoholics in industry. He realized that in any one company the number of known cases did not justify the cost of establishing a clinic for the study of this condition and felt that industry should pool its resources in a special center.

Convinced by the lessons of its own internal program of the need of such a center, top management at Consolidated Edison in December,

Summary of Results of Company Procedure on Alcoholism

Consolidated Edison Co. of New York, Inc.

Five-Year Period (1948-1952)

Total cases	198
Cases under control	65 per cent

First Phase of Program (1948-1951)

"A" Cases—referred to Medical Department for examination	61
"B" Cases—relapsed after Medical Department consultation	94
Total cases	155
Cases under control	79 or 51 per cent
Cases followed through 1952:	
Referred to Consultation Clinic (Five relapses. See "Second Phase" results.)	10
Followed through Medical Department and Alcoholics Anonymous (Four relapses—one retirement and three separations—and one resignation.)	14
Total cases	24

Second Phase of Program (1952)

Cases treated by Consultation Clinic:	
"New" cases	41
"Old" cases	10
Total cases	51
Cases under control	41 or 80 per cent
Relapses—"B" cases:	
"New" cases	3
"Old" cases	5
Total cases	8
(Four separation allowances, three retirements, one discharge.)	
Resignations (inability to control problem)	2

1951, volunteered to underwrite the cost of launching a Consultation Clinic for Alcoholism at the University Hospital of the New York University—Bellevue Medical Center. This clinic, the first to be devoted solely to the alcoholic in industry, was developed with the guidance of Dr. A. J. Lanza, Director of the Institute of Industrial Medicine, and was formally opened on February 4, 1952. The Standard Oil Co. of New Jersey joined in the use and support of the clinic facilities in October, 1952.

Now I would like to explain how we have utilized the consultation clinic, to which the patient is referred only through the Medical Department and, of course, always with his consent. There are three types of patients who have been sent to the clinic. The first, which is the most numerous, comes under the company procedure. The second consists of individuals whose alcoholism is considered by the Medical Department physician to be a contributory factor in a medical problem. The third type is comprised of employees who realize that their drinking is causing problems in their everyday lives, although it has not yet interfered with job performance. To maintain the confidential nature of the doctor-patient relationship at the clinic, it was decided to eliminate any reports and depend on periodic revisits to the Medical Department to ascertain the progress in individual cases. This apparently has created a suitable atmosphere for successful operation of the clinic.

Second Phase

Under the second phase of the alcoholism procedure, beginning in January, 1952, when we utilized the consultation clinic, it was evident that the results of treatment were an improvement on our previous experience. First, we salvaged cases that we otherwise would have lost, and, second, absenteeism was greatly reduced.

All told, there were 43 new cases in 1952, and 41 of these, in addition to ten old cases from previous years, were referred to the clinic. We appreciate that one cannot speak of recovery at the end of the first year of treatment, but to date 41 out of these 51 patients, or 80 per cent, have had their problem drinking under control without relapse. Of the ten who were not successfully rehabilitated, six who suffered a relapse were given disability retirement or separation allowance, one was retired for a physical disability related to alcoholism, one was discharged, and two resigned. Five of the cases involving relapse were old, and the patients concerned had made approximately only one visit to the consultation clinic.

It is hard in the alcoholic case to determine from the record whether or not a sick absence was in fact an alcoholic episode, and from a practical point of view we have not attempted such a differentiation. The average sick absence in this group for a three-year period prior to referral to the consultation clinic was 13.5 days per year, approximately double the company average. Since inception of treatment, the absence-frequency rate has been approximately 3.5 days but will probably be projected to 4.5 days when one full year is completed by the entire group.

We realize that others may view the situation of problem drinking in a different manner and have reported success with other methods of treatment. Our own experience with the company program for the past five years demonstrates that 65 per cent of our 198 patients have their drinking under control. It confirms our belief that a definite company procedure is the first step in successful rehabilitation of the drinker because it identifies the problem at an early stage. Means of obtaining adequate medical treatment are an important corollary to the procedure, and a central clinic for industry appears to offer the best facilities for rehabilitation in a metropolitan area. After five years of experience, we are convinced that from an operating and medical point of view our Company Procedure on Alcoholism is on a sound basis.

Power Utility Mobile Radio Service

W. C. Phillips

New England Power Service Company

Abstract of a paper presented before the EEI Transmission and Distribution Committee, Washington, D. C., February 12, 1953

THE steady increase in the number of licensees in the Power Utility Mobile Radio Service requiring use of the 30-50 and 153-158-mc bands has created such a congestion in several parts of the country that it is no longer possible to find satisfactory channels for the steady influx of new systems. Since there is little likelihood that we can obtain more space in these portions of the radio spectrum, our only complete solution to the problem is to utilize those frequencies we have in the most efficient manner possible by employing radio equipment which utilizes the narrowest practicable segment of the spectrum for each channel.

Equipment Conversion

The great majority of present 30-50-mc systems utilize channels 40 kc wide, while the 153-158-mc systems use channels 60 kc wide, and FCC allocations are now made on this basis. Equipment manufacturers are producing so-called "narrow-channel" equipment for the 30-50-mc band which utilizes only 20 kc of the spectrum for each channel instead of 40 as at present. Much of the 30-50 equipment which we have placed in service in the last two or three years can be quickly and inexpensively converted to 20-kc band width, and the time has now come when it is necessary that a transition to this type of operation be initiated among existing licensees as a means of providing space to accommodate additional systems.

Under the tentative program presently conceived, those 30-50-mc systems employing modern equipment easily convertible to 20-kc operation will be modified first, thereby creating room for a certain number of new systems. At some future time during the program, depending on the rate of influx of new licensees, it will become necessary that existing licensees whose systems include older equipment not suitable for conversion to 20-kc operation also convert. At that time, the older equipment of these existing licensees will have to be retired, and management should recognize the probability of the premature obsolescence of such equipment.

By the same reasoning, all new equipment purchased for existing 40-kc systems operating in these bands should be suitable for ready conversion to 20-kc operation. This feature involves no purchasing or price problem when dealing with the major radio equipment manufacturers. It is, of course, obvious that completely new 30-50-mc systems should be purchased for 20-kc channel operation to avoid the necessity for conversion later.

The congestion in the 153-158-mc bands is even more severe than in the lower bands just discussed, and a similar conversion program will be required there as soon as a presently pending decision has been reached as to whether the present 60-kc wide channels should be split into two 30-kc channels or three 20-kc channels. Several manufacturers are understood to be offering equipment now for these bands which can be easily converted to either 20- or 30-kc operation at such time as the band width question is settled.

A certain proportion of new utility licensees can be accommodated on the 456-457-mc band, for which mobile equipment has recently become available. There are certain limitations to the use of these ultra-high frequencies, and service tests to date indicate that line-of-sight transmission paths become more important. The band shows excellent performance in congested urban areas and offers great promise for use on compact systems in relatively flat terrain.

Although these channels are now granted by FCC only on a developmental basis, we are assured by the commission that allocations in the band will continue to be available to our service. We understand that persons obtaining a license at this time may, at most, be required to make a frequency change within the band at a later date when certain detail changes in the allocation tables, which are now under consideration by the commission, are finalized.

The Credit Picture

(*Continued from page* 108)

payment, show a marked increase.

The number of deposits, an indication of tightening credit, shows an increase in all geographical areas except East North Central. In this area, eight of the 12 reporting companies show a reduction in deposit amounts, while four companies show an increase. Two of the companies reporting a decrease explained it, in one case, by a change to a no-deposit policy and, in the other case, by a merger and a policy of reducing deposits carried over by refunding those over one year old.

All areas except West North Central, East South Central, and the Mountain States show a greater increase in dollar volume of charge offs than in the growth of sales.

This report is based on information furnished by 73 companies, which are five more than the number that submitted information for the last report. A real effort is being made to increase the number of companies furnishing this information, and at least 14 additional utilities have agreed to submit a report for the next Credit Picture.

Correction

In the March, 1953, issue of the BULLETIN, C. Myron Lytle, Manager of the Engineering Department, Kansas City Power & Light Co., and co-author of "The Planning Picture for Kansas City Power & Light Co.," appearing on page 83, was incorrectly identified.

Why Should an Electric Company Promote Adequate Wiring?

Carl T. Bremicker

Vice President in Charge of Sales, Northern States Power Company

Extracts from an address before the Ninth Annual Adequate Wiring Conference, Chicago, Ill., February 26, 1953

THE average annual residential use of kilowatthours increased again last year. But, this is not news. It has been happening year after year. Most of us in the electric industry have come to expect it and somewhat take it for granted.

For the electric company, this increase is, of course, most important. Nationally, about 27 per cent of all the energy produced in the United States by electric companies is used by residential customers. Dollar-and-cents wise, sales to residential customers account for about 41 per cent of electric utility revenues. And about 55 per cent of the electricity sold to residential customers is used for operating appliances. To other branches of the industry, this perhaps explains why so many electric companies consistently advertise and promote the sale of major electric appliances and electric housewares.

This year, there is every indication that the appliance division of the industry will concentrate its advertising and merchandising efforts on the so-called "growth appliances"—the room air conditioner, electric clothes dryer, home freezer, and electric sink. But in doing so, it will not, I believe, discontinue promoting electric ranges, electric water heaters, automatic laundry equipment, refrigerators and a host of electric housewares.

Residential Consumption Increasing

It is quite safe to predict that if appliances are in free supply, the average annual residential kilowatthour consumption for 1953 will show another increase. If any residential customer installs all four "growth appliances" this year, his annual use of electricity will increase approximately 2,000 kwh. Thus it seems that as long as the appliance division of our industry continues to develop new current-consuming devices for the home, and as long as the industry continues to create consumer acceptance for these products, the electric companies of this country can look forward to continuing increases in the use of electricity by their residential customers.

There is no doubt in my mind concerning the ability of electric companies to meet the increased demand of residential customers, as well as those of rural, industrial, and commercial customers. But, I think the time has come for electric companies and all other branches of the industry to realize that our customers cannot continue indefinitely to add electric appliances to residential wiring systems already close to the elastic limit. We can produce all the energy needed to serve the new appliances our customers acquire, but how long can the wiring system on the customer's side of the meter take it?

The Determining Factor

That system today is probably serving the lighting needs in the home, providing energy for appliances using heating elements, for motorized appliances, and electronic devices. It was more than likely designed for much less. The traffic on these copper pathways in the average home is getting heavier and heavier, year after year. How much more can they take? How many more current-consuming devices, which we know the customer plans to buy, can his present wiring system serve with safety, convenience, and economy?

If we are interested in a constantly increasing residential use of electricity, we must take a realistic view of the fact that the number of appliances which can be served in the customer's home is determined by the adequacy of the wiring system.

This was shown in a survey made a few years ago for NEMA by the Psychological Corp. The purpose of the survey was to determine the number of appliances in use in adequately wired homes and in comparable homes with average minimum wiring systems. It was found that in the homes with adequate wiring systems, there were 41 per cent more electric ranges; 66 per cent more electric water heaters; 364 per cent more electric dishwashers; 155 per cent more electric waste disposers; 39 per cent more electric ironers; 14 per cent more electric fans; 6 per cent more small appliances; and 8 per cent more portable lamps. These figures, I think, show the relation which exists between the number of appliances used in a home and the capacity and design of the wiring system.

This survey indicates the first reason why an electric company should support the National Adequate Wiring Program—why it should work to the goal of having every new home on its properties carry the Certified Adequate Wiring Emblem—why it should promote and help to implement rewiring programs to modernize systems in older homes. Can any company confidently anticipate a continuing increase in its residential sales of energy, which, as I have said, accounts for approximately 41 per cent of its revenue, if residential wiring systems are not installed which will permit more and more appliances to be used year after year?

Parenthetically, I would like to add that kilowatthour consumption on Upper Midwest electrified farms is increasing at an even greater rate than at the urban residential level. Systems installed a relatively few years ago cannot carry the 1953 load and still give the farmer the kind of operation he expects from his motorized equipment. It would be only human to expect him to say that the lines of his electric supplier are inadequate.

The inadequacy, of course, lies in the wiring system on his side of the fence. On one hand our industry is

working for greater utilization of electricity in farm production, while on the other hand it is fully aware of the fact that the average farmstead wiring system cannot, without considerable revamping, carry the increased load of the new equipment the farmer wants for greater and more economical production. Much progress is being made through educational programs to clear up the misunderstanding of farm customers with resulting better customer relations.

Friendly Contact

At Northern States Power Co., we have found that an Adequate Wiring Service gives us a new, a personal and friendly contact with many of our residential customers, and this is the second reason why, in my opinion, an electric company should get behind the program. We encourage customers who are planning to build or to remodel to bring their preliminary plans to our office. It gives us an opportunity to discuss "electrical living" with them; to explain the importance of a carefully planned adequate wiring system; what such a system provides in terms of safety, economy and convenience; why adequate wiring will supply their electrical needs for many years without additions or alterations.

We prepare a wiring plan for the home and two sets of blue prints. We give the customer an attractive folder which carries his name, his present address, and the address of his new home. In this folder, we put the two blue prints; a copy of *For Better Living Your Home Needs Adequate Wiring;* a copy of *Is it Certified?;* as well as a copy of *Is Your Home Light-Conditioned?* This is a service which can be freely and cheerfully given because the customer, our company, and the industry profit. The customer installs a wiring system which is safe, dependable, and adequate to supply all his electrical needs for many years; our company has gained a more personal and friendly relation with the customer; and the National Adequate Wiring Program has benefitted from growing consumer acceptance.

Another reason for support of the Adequate Wiring Program is that it directly contributes to greater safety in the home! If such a program does nothing more than prevent many of the accidents which result from poorly lighted stairways, tangles of extension cords, octopus outlets, and overfused circuits, it would be well worth every promotion dollar and every hour of effort invested.

The fourth reason why an electric company should cooperate in promoting adequate wiring is that it builds good trade relations with those in the field of new home construction—the building contractor and speculative builder; electrical contractor; building and loan association; and architect. One example, I think, will illustrate my point.

The Minneapolis Home Builders Association has for two successive years won national awards for outstanding National Home Week Promotion. Because of the contacts which personnel of our company have made for several years to promote adequate wiring with the home building trades, we are represented on the various planning committees, and we were in the activity with both feet. We prepared the wiring layouts for the exhibition homes; helped to provide floodlighting for these homes during the exhibition period; devoted one of our TV programs to the promotion; had special window displays in both our Minneapolis and St. Paul offices; supplied a neatly framed description of the wiring system in the exhibition homes, explaining how it would "serve and save; and ran this rather striking advertisement in the Sunday edition of our paper, which reached 620,000 readers. In this ad, we listed each home with Certified Adequate Wiring together with the name of the builder. The same was true of the homes on display with Light Conditioning and those equipped with all-electric kitchens.

We feel we shared in the award for the nation's outstanding National Home Week Promotion. We feel we are much closer to the entire building fraternity than ever before. There is a better understanding of our mutual problems. But these better trade relations would probably never have come about except for our Adequate Wiring Program. It opened the door and gave us the entree. We, of course, carry memberships in both of the Twin City Home Builder Associations.

Another reason why a power company should set up an Adequate Wiring Service is because, at the local level, electric companies are especially well experienced in the field of developing consumer acceptance for electrical products with institutional programs. For many years, they have been promoting better light, electric refrigeration, electric cooking and water heating, all-electric kitchens, electric housewares, all-electric home laundries, and food freezers. These programs have, in the main, been themed to the greater comforts and conveniences which electrical appliances bring to modern living.

The same approach will, in my opinion, stimulate both interest and action on Certified Adequate Wiring. We must always remember that our customers cannot see adequate wiring like they can an electric range or electric clothes dryer . . . they can only experience what it does. For that reason, I think it is essential to advertise what adequate wiring does, rather than what it is.

Advertising Pays Off

The response to Northern States Power Co. advertisements to develop consumer interest and acceptance has been heartening—to such an extent that we have already scheduled for this year adequate wiring ads on the home-building pages of 28 Sunday editions in the *St. Paul Pioneer Press* and the *Minneapolis Tribune.* Over and over again, we plan to tell our customers about what Certified Adequate Wiring contributes to easier, more comfortable living.

Local advertising of this kind helps to make all the advertising and publicity features prepared by the National Adequate Wiring Bureau pay off. Any national program needs local identification, local cooperation, local build-up! National advertising, publicity, and promotion stimulate interest and desire, but whatever action takes place comes at the local level from the people who live on the Main streets of our communities—our customers. We must have distribution at the local level of the adequate wiring idea through advertising, publicity, and promotion. While I do not think that the industry should expect electric companies to accept the entire responsibility for this job, I do feel that a company can take the initiative, get the ball rolling. Once that is done, I am confident (from our own experience) that the other branches of the industry will cooperate and contribute their share to the task of developing public acceptance.

As for consumer literature, electric companies will find a wealth of material available through the National

Adequate Wiring Bureau and, I believe, at prices which are lower than the cost of local production. I want to compliment the bureau on creating the kind of interest-compelling leaflets, booklets, and folders which come to my desk. We at Northern States Power Co. know they are good and what's more important, we use them.

Why should an electric company support the Adequate Wiring Program? First: there is a very definite relation between the number of appliances used in homes and the adequacy of the wiring system. Therefore, a continuing increase in residential kilowatthour consumption depends to a large extent on the wiring system on the customer's side of the meter.

Second: a Certified Adequate Wiring Program offers unusual opportunities in the field of good customer relations. It lends itself to a service which makes new friends for a power company.

Third: it gives an electric company a program through which it can promote greater safety in the home and help to reduce the number of accidents and hazards which are linked with age-old, inadequate wiring systems. Such a program is certainly in the public interest.

Fourth: an electric company will also find that an Adequate Wiring Service will bring it much closer to architects, builders, home loan agencies, electrical contractors, and electrical wholesalers. Such a service is, therefore, a "natural" for good trade relations!

Fifth: an electric company should support the national program because, at the local level, a company is the one branch of the industry which can put years of experience into the kind of promotion which will make national advertising pay off at the grass roots . . . sell the idea on Main Street.

Most important of all, it is the responsibility of any business which manufactures a product or sells a service to create and carry out sales promotion plans that will tend to insure the maximum use of the product or service it supplies. Whether or not the effort expended in the promotion of adequate wiring brings in a return from its investment is, of course, important. However, in my opinion, we owe it to our consumers to inform them of the benefits of adequate wiring as a part of our service.

State Resolution Congratulates P.G. and E.

The following is the text of a Concurrent Resolution recently adopted by the California State Senate and Assembly congratulating the Pacific Gas and Electric Co. "upon the completion of 100 years of faithful and conscientious service to the people of California."

WHEREAS, A century ago in San Francisco, a small gas company was founded which over the years was to progress and to grow, until today, its successor, the Pacific Gas and Electric Co., is one of the largest privately owned public service corporations in the world; and

WHEREAS, The Pacific Gas and Electric Co. and its predecessors have served the people of Northern California efficiently and well; and

WHEREAS, The Pacific Gas and Electric Co. now serves as an outstanding example of the great benefits which can accrue to all people by enlightened and sagacious management of private enterprise; and

WHEREAS, The Pacific Gas and Electric Co. has, during the 100 years of its existence, always been a pioneer on the road to progress, helping in no small measure to raise the State of California to the pinnacle of greatness which the State has achieved among the states of the Union and among the nations of the world; now, therefore, be it

Resolved by the Senate of the State of California, the Assembly thereof concurring, That the Members of this Legislature extend heartiest congratulations to the Pacific Gas and Electric Co. on the occasion of its centennial, and commend the Pacific Gas and Electric Co. upon the completion of 100 years of faithful and conscientious service to the people of California; and be it further

Resolved, That a copy of this resolution, suitably engrossed, be sent to James Black, President of the Pacific Gas and Electric Co.

The Electric Industry in Perspective

(*Continued from page* 104)

because of the nature of engineering education.

Herbert Hoover, an American engineer whose responsibilities in his career have gone far beyond his chosen field, recently said: "The training of engineers instills character in those who would join their ranks. High ethical standards are the essential of all professions, engineering included. Technology without intellectual honesty does not work. Construction without consciousness crumbles."

Clear-sightedness and the ability to evaluate many factors should come almost as second nature to the trained engineer, for his work is usually subject to the inexorable laws of nature which do not permit successful self-deception.

The trait of character, the capacity to treat facts objectively, the vision to see beyond the moment and divine the workings of complicated inter-relationships—these are the keys which engineers have to unlock the doors of opportunity for themselves and for the electric industry.

It will be mandatory that the management head of an electric company have an all-encompassing understanding of his organization's major purposes and responsibilities and it will be highly desirable for him to have a good knowledge of the various operational fields. But the mere fact that an executive has an excellent grasp of a given field, whether it is engineering, sales rates, legal work, or any other, will not qualify him to be a management leader. If he cannot see the overall picture, and equally important, if he cannot effectively transmit this larger perspective to his organization, he will not be a good leader.

Ours is an industry which has been built on exceptional human beings and their achievements, and we shall need them more than ever in the future. There is nothing in the record past or in our limited range of forecasting ahead to encourage complacency. There is in our industry perspective that which should quicken the blood, alert us to reach new prospects and overcome unseen hazards, and above all, to maintain the electric industry on its basic foundation of service to America.

Reporting Generating Capacities to the Investor

Hendrik A. Diamant
Public Utility Analyst, Baker, Weeks & Co.

IN this age of startling engineering advances, few nonengineers will venture to make suggestions to the technicians of our industrial progress in their own field. Yet the vital importance of absolute clarity in the presentation of data required by the investor in public utility securities prompts the writer to seek space in the BULLETIN, whose columns normally are available to the electric company operator rather than to the investor. Its readers, he hopes, will share his opinion that the interrelation between the interests of the industry and those of the investor is too pronounced and the need of lucid presentation of technical data to the security analyst—in this respect, the investor's representative—too essential to bar an analyst's suggestion for improvement of one aspect of technical reporting. We have in mind the reporting of "property" data in the registration statement or offering prospectus, corporate annual and interim reports, and discussions of peak loads, construction programs, etc.

Listing of Demonstrated Capacities

Before the middle thirties and the appearance of the more comprehensive offering prospectus, the two-page or, at best, four-page offering circular describing a new public utility bond or stock issue covered the description of properties with no more elaboration than "the total generating capacity of the company is 500,000 kw, of which 300,000 kw is hydro and 200,000 kw steam." No further detail was considered necessary, and the kilowatts shown merely represented "rated installed" generating capacities. Cursory information had to, and did, generally suffice, and, in addition, excess or reserve capacities in those days were so ample—in many instances over 50 per cent—that hardly any outsider showed much interest in "demonstrated" rather than "rated" capacity.

Even under the SEC-inspired "full disclosure" of later years, listing of effective or demonstrated capacities did not begin to appear until heavily swollen World War II and post-war demands for electric power reduced reserve capacities to threateningly small percentages. It was then that the industry began to feel the need of acquainting the investor not only with the rated capacities but also, and above all, with the actually attainable maxima as observed during actual operation. Such more comprehensive data became essential in allaying investor fears that an electric company might find itself short of power to meet full demand. If, for example, only the 200,000-kw rated capacity of a given system should be reported against a peak demand of, say, 205,000 kw, the implications might easily deter the investor, whereas the added statement that effective capacity was 230,000 kw might have a reassuring effect.

Room for Improvement?

Both the industry and the experienced analyst are sufficiently familiar with the history of reporting generating capacities to preclude the necessity of going here into great detail about it.[1] What concerns us at this particular time is how helpful the reporting is today and whether or not there is room for improvement.

The typical present-day prospectus lists the various generating stations owned and operated by a company (indicating whether they are hydro or fuel-burning) and the number and capacities of the respective units of each station. In additional columns, the aggregate capacities and the aggregate (effective or peaking) capabilities are given. These are footed to arrive at the respective system totals. Many prospectuses add to these data the year of installation of each unit. In some instances, additional refinements of information are presented, either in the tables or in accompanying text or notes, such as peak load or net maximum output for the system or generating unit or station (the "net" meaning "after deduction of station use").

Students of electric company securities are highly appreciative of the increasing thoroughness with which the industry is facilitating the search for as many of the essential data regarding capacities as are needed in appraising a utility's securities, and all the more credit is due the electric companies in this respect because it has evidently been given without any regulatory pressure. At least, the striking lack of uniformity supports this assumption.

The deficiencies in reporting generating data principally concern the reporting of what we may call "demonstrated" generating maxima as contrasted with the more arbitrary "rated" or "name-plate" maxima. Demonstrated maxima take two principal forms: (a) the maximum of kilowatts at which generating equipment can be run continuously; and (b) the maximum at which it can be run at peak, say, for one or two hours, without causing damage to any part of the facilities. In order not to complicate the problem at the outset, it is unnecessary, at this point, to refer to the very special considerations involved in determining what usually is called "dependable capacity" of hydroelectric generating equipment, nor shall the problems resulting from power purchased under pooling or other agreements be introduced.

A Concrete Example

To take a concrete example, a fuel-burning unit may have a rated capacity of 30,000 kw (a somewhat arbitrarily, permanently fixed, rounded-out figure, not changeable except through complete rebuilding), an observed or demonstrated continuous maximum capacity of perhaps 33,000 kw, and a one-hour or two-hour demonstrated peaking capacity of, assume, 35,000 kw. These two demonstrated capacities are not necessarily constant or unchangeable, since gradual wear and tear of equipment may reduce them over the years, while other variations almost constantly occur because of differences in grade of fuel or fluctuations in ambient temperatures, etc.

For the time being, we shall follow the industry's present general practice

[1] See the writer's "Rated versus Actual Capacity for Power Production," *Public Utilities Fortnightly*, January 17, 1952, and "Capacity or Capability," *The Analysts Journal*, May, 1952. A limited number of reprints of these two articles is available upon request to H. A. Diamant, Room 2000, 1 Wall Street, New York 5, N. Y.

and refer to all capacities which are not rated or name plate as *capabilities*, reserving the term *capacity* exclusively for the rated maximum. Our objections to the industry's present practice of reporting generating maxima are threefold:

1. There is no uniformity as to the amount of detail presented. Several companies give about all that is needed; others leave out one or more factors, such as effective capability, peak load, year of installation of each unit, "net" capability (after deduction of station use), etc.

2. There is no uniformity as to the technical terminology used, particularly so far as capabilities are concerned. The variety of terms applied is rather impressive. One comes across "effective capability," "effective capacity," "effective operating capability," "demonstrated capability," "demonstrated capacity," "dependable capability," "dependable capacity," "estimated dependable capacity," "demonstrated dependable capability," "generating capability," "peaking capacity," "capability" (without any adjective), "estimated capability," "capability rating," "effective generator capacity," "net output capabilities," "peak plant capability," and so on.

3. In many instances, clearness is lacking because in tabulating observed maxima of generating capacity no hint whatsoever is given as to whether continuous ability or one-hour (or two-hour) peaking ability is meant. Some companies cooperate by giving in the accompanying text or in a note a definition of the term used, but others leave the analyst in the dark by using nothing but the term "capability." Even where adjectives are added, the exact meaning may not be clear. Just what is meant by "effective" or "demonstrated" or "dependable?" In discussing this with some power engineers, the writer received the puzzling answer that "It all depends upon the individual engineer!"

These inadequacies in the presentation of data, beyond confusing the security analyst, also make it extremely difficult for him to work out comparisons between companies or to make industry-wide calculations. He realizes, of course, that the rapid growth and development of our complicated economy inevitably had to be accompanied by much that just grew unsystematically, a condition which undoubtedly accounts for this imperfect and unstandardized reporting.

Granting, then, the electric industry's desire to adopt a more satisfactorily standardized means of reporting, the question arises: How, and how soon, can this be done?

The few authoritative technical glossaries that exist—such as the "American Standard Definitions of Electrical Terms"—usually are revised at long intervals of as many as ten or 12 years, and the process of revising is a laborious one, partly because of the considerable specialized personnel involved. Moreover, strictly professional compilations of this character are intended for the full-fledged engineer and not for investors or investment analysts.

Suggested Committee

However, the electric industry has available in its own trade organization, the Edison Electric Institute, a highly impressive aggregate of specialists, not only in the engineering but also in the financial field, a combination of talent eminently fitted to work out a competent method of acquainting the investing public with generating performance data. From among these, it would be very desirable to have a small committee of diversified experts draw up suggestions for a satisfactory method of reporting maximum generating capacities to the investing profession, not necessarily to be binding upon the industry. Most companies, nevertheless, would be willing to adopt an intelligently conceived form of reporting for the sake of greater uniformity.

Such a committee could also make itself additionally useful by streamlining the terminology used in reporting generating maxima. Applied by few companies a dozen years ago, the term "capability," as a technical contrast with "capacity," now has been adopted by a majority in the industry.

The introduction of the term "capability" for demonstrated generating maxima versus "capacity" for the rated or name-plate maxima was an attempt to find a forcefully expressed distinction and to effect word-saving through elimination of defining adjectives, such as "rated," "effective," "dependable," etc.

Whoever originated the distinction between the two words apparently did not realize the grammatical and logical incorrectness of it, nor that, instead of promoting lucidity, it would cause confusion and misunderstanding. In addition, it did not save words because clarifying adjectives or accompanying definitions remained necessary to convey just which of the various maxima one had in mind. If a speaker or writer refers to 55,000-kw capability without using any adjective, does he mean "effective continuous" capability or one-hour or two-hour "peaking" capability? If it be reasoned that one of these two demonstrated capabilities should not be called "capability," what then should it be called? "Capacity" would be out of question, because that term has been reserved for the rated or name-plate maximum. The wholly illogical character of the distinction now becomes apparent. Proper defining adjectives remain necessary for clarity, and, because of this, there is no advantage whatsoever in using different nouns. The adjectives "rated," "effective," "peaking," "dependable," preceding in all cases one and the same noun, would do the trick with greatest clarity and simplicity, provided each such adjective is given a special meaning.

Incongruity of Usage

Since the industry at large seems to have become fully accustomed to the false technical distinction between the two words "capacity" and "capability," it no longer feels the oddity of it. The following nonutility analogy may perhaps bring out the incongruity more strikingly.

Mrs. Playne, a thrifty housewife, has accumulated the tidy little sum of one thousand dollars. A trusted friend advises her to invest her fund in a $1,000 Evermore Gain, Inc., convertible bond. Armed with $1,000 in cash and relying on her usually sound womanly instinct, Mrs. Playne, wholly unfamiliar with investment matters, enters a broker's office to buy her bond. She places her order and counts out an even $1,000.

The broker pleasantly explains that at present market the bond will cost her $1,050, whereupon the good woman remarks, "But I was told that this was a thousand dollar bond." The broker tries affably to make it clear that the $1,000 is nothing but the nominal value of the bond, but that the *market worth* is $1,050 and the *conversion worth* $950. Whereupon, puzzled, Mrs.

Last Call!

MAY 12, 1953, IS THE DEADLINE

for entries in

The Reddy Kilowatt Annual Report Award Contest

Electric companies that desire recognition for their achievements in the betterment of stockholder relations through simplified, humanized, and dramatized annual reports have only a short time left to enter the Reddy Kilowatt Annual Report Award Contest.

Six copies of each entering company's 1952 annual report must be forwarded before May 12 to:

REDDY KILOWATT SERVICE

70 Church Street **New York 7, N. Y.**

Playne asks, "But how can the bond have three different values?"

"It hasn't, my dear lady," proudly explains the expert. "As I told you, it has only one value, the nominal value of $1,000. The $1,050 and $950 are not *values*, they are two different *worths* of the bond. Never speak of *market value*, always call it *market worth*, and in the same way never, never speak of *conversion value* but only of *conversion worth*."

Many technical men are not in the least disturbed when they do something hardly less illogical in distinguishing between generating "capacity" and generating "capability."

The unfortunate distinction leads to various difficulties in stating the facts clearly. It may explain why some companies in their prospectuses refer only to rated capacities, others only to demonstrated capabilities, while a great many use more or less elaborate explanatory notes.

Another Semantic Pitfall

Some electric company executives, when addressing meetings and apparently loath to become entangled in the confusing terms, avoid both words and speak only of name-plate rating and effective rating. This, unfortunately, creates still another semantic pitfall. A rated maximum is a permanently fixed figure for ordering, guaranty, or classification purposes. A demonstrated or effective maximum, on the other hand usually will be a variable amount, because it is based sheerly on observed count or performance. A given type and make of automobile, for example, may have a speed rating of 75 mph. If in demonstrations it manages to attain 80 mph on a sustained basis and 90 mph on a "souped-up" basis, it would be obviously wrong to speak of an effective rating of 80 miles and a peaking rating of 90 miles. The following month or year the machine may perhaps not attain as much as the 75 miles. The rating, nevertheless, will always remain 75, and the actually observed speeds never will be ratings.

It is, of course, possible that some of these executives speak of effective ratings because they do not care to refer to the old-time, rather meaningless name-plate ratings any longer. In other words, they want to establish a new name-plate rating as close as possible to actually demonstrated maximum performance. Although this may be a perfectly sound idea, unless it is adopted by the entire industry, such a reporting novelty will merely further obfuscate the area.

At an earlier point we touched on the peculiar problem created by reporting maximum capacities for systems which have hydro as well as fuel-burning stations. It is highly interesting to observe that those engineers who like to distinguish between the terms "capacity" and "capability," use here preferably the term "dependable capacity" in stating observed reliable system ability as compared with peak demand.

The apparent reason for this terminology is that a hydro station depends for its performance on an available or expendable water supply which, of course, in most instances lacks the stability and dependability that a fuel supply has (barring mining or transportation interruptions). In other words, in totaling up the safely dependable amounts of kilowatts to arrive at the system total, they give the steam stations their capabilities under optimum conditions but the hydro stations their observed abilities under certain low-water conditions which may occur.

The "capacity-capability" minded engineer, therefore, feels that in such an instance one does not furnish an actually maximum system figure, but rather, for safety's sake, a dependable figure. He usually speaks, therefore, of "dependable capacity" rather than "dependable capability." He adds up capabilities (steam) and what he considers as capacities (hydro) and calls the total "dependable capacity." Nothing proves more clearly that the technical distinction made between the two words is intrinsically false and lacks all logical basis!

For another striking example of what peculiarities the distinction leads to, read the following definition from an offering prospectus: "The peak plant *capability* (which is the dependable load-carrying *capacity* during periods of greatest system load) . . ." One starts out by making a definite distinction of meaning between the two words and ends up by considering them as synonyms.

The sooner the industry returns to the use of a single noun (reinforced by appropriate adjectives) to express maximum generating abilities, the better. It makes relatively little difference whether "capacity" is made the exclusive term, or "capability." Since the industry now has largely adopted the word "capability," which is somewhat more suitable than "capacity," the logical thing to do is to make "capability," preceded by the proper adjective, the standardized term for any kind or form of rated or demonstrated or dependable electric generating ability.

Speakers Bureau Formed

A SPEAKERS Bureau, to be under the direction of C. D. Alexander, Bozell & Jacobs, Inc., has been established through the Electric Companies Public Information Program. The principal objective of the bureau will be to arrange for utility executives and public relations personnel to speak on industry objectives and related subjects before national and regional meetings of various groups.

Second Area Development Institute Scheduled at University of Michigan

J. Frank Gaskill
Sales Manager, Philadelphia Electric Company, and Chairman, EEI Area Development Committee

THE Area Development Committee is completing plans for a second Institute to be held on the campus of the University of Michigan in Ann Arbor, Mich., on June 22-24. The first Institute sponsored by the committee and held at Yale University in September, 1952, attracted more than 80 representatives of electric companies.

"The Electric Utility Grows with the Area It Serves" has been selected as the theme for the 1953 Institute Subjects for discussion have been carefully chosen so as not to duplicate any part of the 1952 program, but, at the same time, to cover as far as possible the many problems that daily confront utility development departments. These subjects will include various phases of (1) Natural Resources and Agricultural Development, (2) Recreation and Travel, (3) Community Development, and (4) Industrial Development.

The University of Michigan will provide excellent facilities for the Institute, including modern meeting rooms in the School of Business Administration; housing in Kelsey Hall, a new dormitory with individual rooms for registrants; and fine meals served in a private dining room in

Tentative Program of the Area Development Institute

Monday, June 22

10:00 a.m.-12:00 noon — WELCOME
J. Frank Gaskill, Sales Manager, Philadelphia Electric Co., and Chairman, EEI Area Development Committee

Russell A. Stevenson, Dean, School of Business Administration, University of Michigan

Harlan A. Hatcher, President, University of Michigan

REGIONAL DEVELOPMENT, NEW CONCEPTS AND NEW HORIZONS
John S. Coleman, President, Burroughs Adding Machine Co.

PEOPLE, LAND, AND THE PUBLIC UTILITY
Walker L. Cisler, President, The Detroit Edison Co.

2:00 p.m.-5:00 p.m. — *Natural Resources and Agricultural Development*

LAND AND WATER AND THE ELECTRIC INDUSTRY
Dr. Paul Sears, Head, Department of Conservation, Yale University
Walter Gumbel, Conservationist, Monongahela Power Co., and Editor, *Journal of Soil and Water Conservation*

THE ELECTRIC BUSINESS AND THE FUTURE PATTERN OF AGRICULTURAL DEVELOPMENT
Dr. Oscar Jessness, Head, Department of Agricultural Economics, University of Minnesota

Tuesday, June 23

9:00 a.m.-12:00 noon — *Recreation and Travel*

AMERICANS ON THE MOVE
Clifton W. Housley, Recreation and Travel Market Analyst, Curtis Publishing Co.

FACILITIES FOR THE TRAVELING PUBLIC AND THEIR VALUE TO ELECTRIC COMPANIES
A. J. Montgomery, National Publicity Director, American Automobile Assn.

RECREATIONAL AREA CASE STUDY—A MICHIGAN REGION
John Beukema, Director, Muskegon Chamber of Commerce

2:00 p.m.-5:00 p.m. — *Community Development*

NEW STANDARDS FOR MODERN COMMUNITIES, RECENT TRENDS IN AREA PLANNING, ZONING, AND TRANSPORTATION
Max S. Wehrly, Director, Urban Land Institute

THE CITY AND THE SUBURB—A CHALLENGE TO THE PUBLIC ADMINISTRATOR
Clarence Elliott, City Manager, Kalamazoo, Mich., and President, International City Managers Association

LOCAL ACTION FOR COMMUNITIES
Walter L. Blucher, Executive Director, American Society of Planning Officials, and Consultant, The Detroit Edison Co.

Wednesday, June 24

9:00 a.m.-12:00 noon — *Industrial Development*

LOCATION REQUIREMENTS OF INDUSTRY TODAY
G. E. Garnhart, Director, Real Estate and Insurance, Westinghouse Electric Corp.

TRENDS AND OUTLOOK FOR INDUSTRIAL EXPANSION—BY CLASSIFICATION OF INDUSTRY
Stahrl Edmunds, McGraw-Hill Publishing Co.

PLANNED INDUSTRIAL GROWTH—A PRACTICAL SOLUTION
T. L. Blakeman, Director, Detroit Metropolitan Area Planning Commission

2:00 p.m.-3:00 p.m. — *Summary and Conclusions*
John W. Hyde, Professor of Planning, University of Michigan

J. Frank Gaskill, Chairman, EEI Area Development Committee

the dormitory. There is a main lounge on the first floor of the Hall and smaller lounges on each of the other four floors.

John W. Hyde, Professor of Planning, University of Michigan, is helping the Area Development Committee arrange the program and associated activities connected with the Institute. His efforts are only a part of the wholehearted cooperation which has been evidenced by the University of Michigan in developing plans for the Institute. The committee is also grateful for the interest and assistance of The Detroit Edison Co.

Outstanding speakers, listed elsewhere in this article, have been selected to address the Institute. Emphasis will be placed on subjects of basic importance and widespread application, and opportunity will be provided for ample discussion so that those in attendance can exchange ideas and secure answers to their own local problems.

Presiding at their respective half-day sessions will be John H. Jones, Chairman of the Natural Resources and Agricultural Development Subcommittee; Walter I. Dolbeare, Chairman of the Recreation and Travel Subcommittee; Paul V. Hayden, Chairman of the Community Development Subcommittee; and Daniel L. Diehl, Chairman of the Industrial Development Subcommittee.

Social activities during the Institute will include a buffet supper to be held in Kelsey Hall on the eve of th Institute's first session and a cocktail party and dinner to be held at the Barton Hills Country Club on Wednesday following the final session. In addition, Institute registrants have been invited by the Ford Motor Co. to be guests on Thursday, June 25, for a tour of the Ford River Rouge Plant, Ford Museum, and Greenfield Village.

All arrangements with the University require advance registration to be made by April 30. At the Institute, registration will take place in Kelsey Hall from 3 p.m. to 6 p.m. on Sunday June 21, and at the School of Business Administration from 9 a.m. to 10 a.m. on Monday, June 22. Requests for registration forms and information on housing and meals should be directed to John W. Hyde, School of Business Administration, University of Michigan, Ann Arbor.

Earle L. Kavanaugh

EARLE L. KAVANAUGH, New Business Manager of The Detroit Edison Co. and a member and past chairman of the Industrial Power and Heating Section, died recently at the Henry Ford Hospital, Detroit, following a long illness. He was 59 years of age.

MR. KAVANAUGH

A recognized authority on electric furnace operation and competitive power problems, Mr. Kavanaugh was respected throughout the industry for the breadth of vision, unfailing kindness, and sympathetic understanding with which he endowed his many activities. During his years of Institute service, his sound judgment and counsel were devoted to the development of the Industrial Power and Heating Section and to the fulfillment of its purposes, to which few contributed as much.

Mr. Kavanaugh was born in Detroit and joined The Detroit Edison Co. in 1909 as a clerk, later becoming associated with the Engineering Division of the Sales Department, where he was employed in power-plant testing projects. He was subsequently given the special assignment of helping to develop an electric brass-melting furnace, and his work on the conservation of zinc in brass melting has made a lasting contribution to the industry.

After World War I and military service in France, he became engaged in the promotion, sale, and service of Detroit Electric Furnace Co. equipment in England. He returned to Detroit Edison in 1922 as a power sales engineer and was instrumental in securing wide acceptance of electric melting, particularly in the nonferrous industries.

In 1937 he became head of Detroit Edison's Power Sales Division and in 1948 was named new business manager. In the latter capacity, he was responsible for the company's municipal services; commercial cooking, street lighting, and industrial development activities; and for the sales of power, lighting, and steam.

Mr. Kavanaugh began his association with the Institute in 1935, when he became a member of the Industrial Power and Heating Subcommittee. Giving generously of his time and effort, he developed a background of knowledge which proved invaluable to his Institute associates. He was appointed vice chairman of the Industrial Power and Heating Section in 1941 and served as chairman for 1943 and 1944, maintaining his affiliation with the group until the time of his death.

Both in its general concept and in its individual parts, the *Power Sales Manual* owes much of its character to Mr. Kavanaugh's constructive thinking. One of the most frequent contributors to the manual, he sponsored sections on "Infrared Heating," "Air Conditioning and Ventilation," "Induction and Dielectric Heating," "Resistance Furnaces," and "Materials Handling." In addition, the success of many other activities and reports of the Industrial Power and Heating Section is attributable to his unstinting work.

A registered professional engineer, he delivered many papers on power and heating problems and allied subjects before regional and national meetings. He was a member of the National District Heating Association and was instrumental in formation of the Great Lakes Power Club, which enjoyed the benefit of his guidance for years.

Throughout his career Mr. Kavanaugh worked tirelessly in service of the industry, contributing his abilities with a spirit of cooperation and devotion to achievement that earned for him the esteem and affection of his colleagues.—A. B. M.

A Report of the Joint Committee on Air Conditioning and Refrigerating Equipment

J. W. Anderson
Philadelphia Electric Company
Chairman, EEI Representatives on Joint Committee

Presented before the EEI Transmission and Distribution Committee, Washington, D. C., February 12, 1953

THE EEI-NEMA-ACRMA-REMA Joint Committee on Air Conditioning and Refrigerating Equipment met in Cleveland on February 3, 1953. The following paragraphs summarize the discussion, emphasizing a subject which has become a critical one in areas of high saturation of air-conditioning equipment and which may be expected later to become equally important in other areas, namely, that of low operating power factor.

The discussion began with consideration of two questions raised at a previous meeting concerning interpretation of the report on *Single Phase Motor Starting Current Rules* (EEI Report Q-8),which has received practically unanimous acceptance in the electric industry. The questions are:

1. Is it permissible to include the resistance of the supply cord of a room air conditioner in determining the locked rotor current of the device?
2. Is it permissible to apply automatic control to a 115-v device normally having a locked rotor current of 46 amp, provided a step arrangement is used whereby the initial current is limited to 23 amp followed after an interval by the full 46 amp, and, if so, what should the time interval be?

After careful consideration by the Joint Committee on Motor Starting Currents, to whom these questions were referred, the following generalized interpretations were given to the air-conditioning group:

With respect to question (1):

When a supply cord is provided as an integral part of a motor-driven assembly, locked rotor current of the device may be measured by application of rated voltage at the plug cap.

With respect to question (2):

Increment starting is permissible provided the four following conditions are met:

1. The current increment between successive steps does not exceed the permissible locked rotor current for automatic starting.
2. The total current on any step does not exceed the permissible locked rotor current for manual starting.
3. The interval between steps is not less than one-half second.
4. At no time is the circuit opened.

Power-group representatives of both Joint Committees strongly urge the acceptance of these interpretations by electric companies as an addendum to Report Q-8. They also urge that information of this kind be passed on to all engineering and operating personnel whose responsibilities include these subjects.

At its meeting in Chicago last May, the attention of the Transmission and Distribution Committee was directed to a major problem facing electric companies in the warmer sections of the country where saturation of air-conditioning equipment is highest, that is, the effects of the generally low operating power factor of air-conditioning equipment. Not only are system peaks now occurring in the summer, but the systems are becoming loaded with amperes in spite of generous use of capacitor equipment. This matter was brought to the attention of the air-conditioning group at an earlier meeting of the Joint Committee in the hope that the air-conditioning industry would be able to provide some improvement in power factor that would relieve the condition. The subject was further discussed at the February 3 meeting, when the results of a year's additional experience and testing were presented.

ACRMA representatives informed the utility group that no further improvement in operating power factor could be expected in the present state of the art; that the addition of running capacitors as an integral part of air-conditioning equipment would result in unacceptable increases in costs; and that, therefore, there was no incentive from the point of view of their industry to provide power-factor improvement.

Some nominally ¾-hp room air conditioners have operating power factors of 80 per cent, rarely above. Based on test information available, most of them have power factors in the 70's and some in the 60's. Smaller units in general have lower power factors, some in the 70's, some in the 60's, and some in the 50's. Power factors of integral horsepower hermetic units, either single phase or three phase, will generally be in the high 60's for the 3-hp rating and in the high 70's for the 5-hp rating.

Room air-conditioner sales totaled more than 300,000 units in 1952, an increase of some 50 per cent over 1951. Nineteen fifty-three production will approximate 500,000 units, another 50 per cent increase; and the industry foresees in early years even greater annual percentage increases. Considering the already enthusiastic acceptance of these devices and the fact that each residence provides a potential market for not only one but several units, these predictions may readily materialize. Volume increases in the larger units for cooling entire houses and for commercial applications may likewise be expected.

Thus, the problem of low operating power factor now directly confronts the electric industry. It is already a critical problem where saturation of air-conditioning equipment is highest, and, as saturations increase, it may be expected to become critical on other systems not yet experiencing difficulties.

Transmission and Distribution Committee Meeting

J. A. Pulsford, *Chairman*

THE 60th meeting of the Transmission and Distribution Committee was held at the Shoreham Hotel in Washington, D. C., on February 12-13. The 185 members and guests were welcomed by G. Bisset, Vice President in Charge of Operations, Potomac Electric Power Co.

Underground Group

The Underground Group, sponsored by D. C. Hawley, included a panel discussion on underground radial distribution circuits led by W. J. Witte. C. Avila, M. W. Ghen, H. C. Judy, W. B. Kenyon, J. A. Pulsford, and H. E. Yeide described typical circuits used in their areas, types and arrangement of sectionalizing and protective devices, and inspection and maintenance practices.

E. B. Shew reported that preliminary 1951 performance data for high-voltage, paper-insulated cable shows a failure rate of 6.9 per 100 cable miles, as compared with 5.9 in 1950. This is the highest rate since 1929. No one cause was outstanding, although most of the increase was due to various types of mechanical damage.

Terminations for nonmetallic sheathed cable were the subject of considerable discussion. W. R. Bullard reported that a taped termination utilizing a stress bell has been used for 13-kv aerial cable in Florida. Operation in uncontaminated atmosphere has been satisfactory, but trouble has occurred near salt water. J. H. Stoneman reported excellent experience with both rain-shield and rubber-insulator bell terminations on 15-kv cables in all types of atmosphere in Virginia. C. E. Topping reported satisfactory operation of mechanically applied terminations on 4800/8320Y grounded aerial cable. L. F. Hickernell, Anaconda Wire & Cable Co.; A. R. Lee, General Electric Co.; R. J. Wiseman, The Okonite Co.; and L. J. Dylewski, G & W Electric Specialty Co., described termination practices recommended by their respective companies for various applications.

T. C. Duncan presented a Phelps-Dodge full-color sound movie showing installation of two 6800-ft, 138-kv pipe-type cables under the Narrows at the entrance to New York Harbor.

Standards and Specifications Group

Subcommittee chairmen reviewed progress in the activities of the Standards and Specifications Group, sponsored by E. K. Karcher.

W. P. Holben announced publication of a revision of TD-10, *Specifications for Rolled Steel Washers*, and outlined progress on revisions of several other existing line-hardware standards more than ten years old. Continued progress is being made on proposed new specifications covering moulding staples, expansion shields for galvanized lag screws and machine bolts, steel insulators pins with 1⅜-in. threads, insulated clevises, and single knob-type wire holders.

W. L. Vest, Jr., reported plans for initiating work on development of industry requirements for heavy-duty interrupting ratings of cutouts and standards for reclosers. He also described EEI-NEMA proposed time-current characteristics for 20-amp branch-circuit protective devices.

F. A. Ashbaugh announced publication of TD-100, *Specifications for Full-Length, Non-Pressure Preservative Treatment of Poles*. Drafts of proposed specifications for Douglas fir heavy-duty crossarms and braces soon will be ready for ballot. Work on specifications for wood pins and recommended practices for inspection of poles and crossarms is being initiated.

R. J. Palmer stated that EEI-NEMA street lighting equipment standards for poles, materials, finishes, and tests; head and reflector interchangeability; and open reflector mountings soon will be ready for issue. Good progress is being made on proposed standards for several other items.

T. C. Duncan reported completion of organization of the new Subcommittee on Connectors for Underground Cable and Cable Accessories. Initial efforts will be directed to revision of the existing TD-8, *Specifications for Straight, Tinned, Copper Connectors*, and development of a specification for compression-type copper connectors.

General Engineering Group

The General Engineering Group, sponsored by W. M. Penney, featured a session on developments in the use of inhibited oil in oil-filled distribution equipment. F. C. Doble reviewed developments in the use of DBPC inhibitor, and R. W. Beard, Allis-Chalmers Manufacturing Co., H. M. Jalonack, General Electric Co., M. I. Zwelling, Line Material Co., and J. G. Ford, Westinghouse Electric Corp., outlined their individual company practices. All stated that their companies are supplying inhibited oil in distribution transformer 167 kva and smaller, but practices on larger ratings and other equipment differ. All agreed that inhibited oil has no detrimental effect when used in oil circuit breakers, but GE tests show that it reduces the interrupting rating of oil fuse cutouts in cases involving repetitive operation.

W. C. Phillips reviewed the status of utility radio and carrier matters. An abstract of Mr. Phillip's report appears on page 112 of this issue of the BULLETIN.

J. A. Siegfried noted that power-supply requirements for television transmitters are considerably more critical than those provided by normal service standards. The problem is intensified with the advent of the new UHF transmitters, which have even more critical requirements and which often are located in rural areas.

A paper by A. S. Anderson suggested adoption of a standard definition of three-phase voltage unbalance as the ratio of negative to positive sequence voltage. He also emphasized the need for manufacturers to recognize that maintenance of practically perfectly balanced three-phase voltages is neither economically feasible nor physically possible because of continualiy changing conditions of load.

J. W. Anderson outlined revisions of proposed AEIC-EEI-NEMA polyphase motor starting current rules which soon will be sent to members for ballot.

Mr. Anderson also reported that discussions of the ACRMA-EEI-NEMA-REMA Joint Committee on Air Conditioning indicates that no substantial improvement of existing low-power factors of room air conditioners can be anticipated. This already is a serious problem in many parts of the South, where air-conditioning load is so large that it produces an annual system peak demand in summer. Mr. Anderson's report appears on page 121 in this issue.

W. J. Blake reviewed experience with residential space-heating loads in northern Virginia, with particular

reference to distribution schemes used to supply subdivisions entirely equipped with radiant panel heating.

Safety Group

The Safety Group, sponsored by F. W. Nimmer, opened with a review of accident records of the electric light and power industry by W. F. Brown, Chairman of the Accident Prevention Committee. Mr. Brown emphasized that there have been 1301 fatalities in the last ten years and that 71 per cent of these have been due to electric shock or burn. The largest factor in these is failure to use rubber protective equipment when working on energized conductors or equipment.

General discussion revealed differences of opinion regarding the desirability of mandatory rubber-sleeve rules. Records indicate reductions of arm contacts where such a rule is in effect, but some companies feel that this imposes an unnecessary burden on linemen and that equivalent safety could be achieved through the use of thorough cover up and insulated platforms.

C. E. Baugh, W. F. Brown, A. N. Shealy, and G. D. Stevens participated in a panel discussion led by F. W. Nimmer on the use of protective equipment while working on transmission circuits. Topics included training programs, delegation of authority to workmen, standards for equipment, testing of hot-line tools, and clearances from distribution circuits.

Overhead Group

The Overhead Group, sponsored by C. E. Baugh, featured a session on overhead light-duty network systems. H. G. Barnett, Westinghouse Electric Corp., described details of a system designed to fill the gap between overhead radial and heavy-duty underground network systems in business areas of small cities where load is from about 125 to 600 kva per 1000 ft of secondary main. Advantages are that this system takes better advantage of diversity among loads, handles abrupt load changes with less flicker, provides more uniform voltage, provides light and power from the same secondary, takes care of load growth more easily, prevents service interruptions due to primary or transformer faults, permits inspection and maintenance of transformers without interrupting load, and facilitates neater overhead construction. D. Burns described an overhead network system used in Detroit, as well as plans for others in downtown areas of some smaller cities.

M. H. Pratt reported that a reballot of a choice among four series of preferred sizes for overhead-type, all-aluminum conductors above number 4/0 reaffirmed a preference for copper equivalent sizes approximating an extension of the AWG sizes.

H. M. Towne presented a General Electric Co. sound-color film, "Lightning Masters," showing application of lightning arresters. This was followed by considerable open discussion on the application of arresters to underground cable and the use of secondary service arresters.

M. Hyatt of J. H. Baxter & Co. discussed the supply of long wood poles for transmission lines. The current supply situation is improved, and indications are that there will be dependable supplies at reasonable costs in the next few years. Stumpage is the principal cost factor and could be reduced if utilities would order a year or more in advance, enabling the treater to take advantage of favorable market conditions.

A gadget show, sponsored by H. E. Yeide, included exhibits of numerous devices and small equipment developed by various operating companies for use on both overhead and underground lines.

Electrical Equipment Committee Meeting

A. M. deBellis, *Chairman*

THE winter meeting of the Electrical Equipment Committee was held in St. Louis, Mo., on February 16-17 at the Jefferson Hotel. On Sunday, the day before the meeting convened, the members were guests of the Union Electric Co. of Missouri at a luncheon at the hotel, followed by an inspection trip through the Meramec Plant and Watson Substation. The 59th meeting of the committee was attended by 92 members and guests.

Monday Session

When the committee was called to order on February 16, Chairman A. M. deBellis advised that the meeting would be in closed session until the latter part of the afternoon to permit the presentation of reports on troubles.

A. M. deBellis welcomed E. F. DeTurk, Long Island Lighting Co., and J. R. Gronquist, Monongahela Power Co., as new members of the committee, and A. T. Higgins, Edison Electric Institute staff, as the new secretary of the committee. Committee members were grieved to learn of the death of their associate, W. J. Lank, Potomac Electric Co., which was also announced by Mr. deBellis.

D. W. Taylor, Chairman of the System and Apparatus Troubles Division, presided over the program of his division. The following members reported on major equipment troubles: generator troubles—S. C. Hoover, W. B. Fisk, F. M. Porter, and D. W. Taylor; circuit breaker troubles—R. J. Salsbury, J. W. Asmann, W. B. Fisk, C. E. Taylor, E. F. Miller, H. J. Klumb, and D. W. Taylor; miscellaneous equipment troubles—D. A. Campbell, J. M. Geiger, H. E. Stites, W. F. Wetmore, and J. S. Brown.

C. L. Derrick, Chairman of the Operation and Maintenance Division, conducted its portion of the program. He spoke briefly on the use of inhibited insulating oil and then introduced W. W. Williams, The Detroit Edison Co., who gave an interesting talk entitled, "Strike Experiences on the System of The Detroit Edison Co."

The meeting was declared open at 4:10 p. m., and the manufacturers' representatives joined the meeting.

Presiding over the program of the Apparatus and Design Division was Division Chairman C. C. Farrell. S. C. Townsend, sponsor for the symposium on "Short Circuit Ratio of Generators," introduced W. C. Brenner, Westinghouse Electric Corp., who presented a paper entitled "Inner-Cooled Generators." L. T. Rosenburg, Allis-Chalmers Manufacturing Co., spoke on "Turbo-Generator Characteristics as Influenced by Supercharged Cooling," and J. B. McClure, General Electric Co., gave a talk entitled "Freedom in Turbine Generator Characteristics is Permissable." C. E. Kilbourne, General Electric Co., concluded the prepared presentations by

giving a short report on modern generators. He indicated that 3600-rpm machines of 400,000-kw rating and 1800-rpm machines of 600,000-kw rating were feasible in the not too distant future, and that the electrical design is not the limiting factor.

Tuesday Session

The System Engineering Division's program, presented during the morning session of the Tuesday meeting, was presided over by its Chairman, H. E. Deardorff. R. G. Meyerand, as sponsor, introduced C. M. Lytle who presented a very interesting paper entitled "The Planning Picture for Kansas City Power & Light Co." This paper appeared in the last issue of the BULLETIN. Prepared discussions were presented by J. W. Bennett, C. W. Anthony, and J. M. Geiger.

A thought-provoking talk entitled "The Ethical Theory of System Planning" was delivered by Stanley Stokes. He emphasized that in system planning, as in other matters, it is important to advise management what the correct ultimate plan is, based on sound engineering. He cautioned the system-planning engineer not to feel chagrined if some special circumstance of a nonengineering character made it necessary to modify his plan. It should be recognized that expedients can be safely adopted only when a soundly conceived ultimate plan is kept in mind. Mr. Stokes enlivened his presentation by citing experiences from his long association with the industry.

In a paper entitled "The Central Illinois Public Service Co. Telemetering, Area Load Control, and Microwave System," H. E. Stites said that his company, located in downstate Illinois, has purchased, installed, and is employing a complete telemetering, area load control, and microwave system to operate and control the company's electrical system in parallel with that of neighboring utilities. The company has thereby become a part of interconnected electrical power systems approximating 30,000,000 kw of pool operation. The immediate need for this equipment was for participation in the supply of interim power to the Paducah area of the Atomic Energy Commission. Prepared discussions of this paper were presented by F. Campbell and T. H. Mawson.

A. C. Gohlke, Chairman of the Utilization Division, introduced C. F. Paulus who presented an interesting paper entitled "Electrical Utilization Equipment in the Power Plant." Mr. Paulus pointed out that in designing a new generating station the specifications for the utilization or station service auxiliary equipment should be coordinated with the specifications for the main generating units. Engineering details concerning the entire construction should be handled in a similar over-all fashion. Even the system and plant operating practices should be considered, and the whole integrated into a common framework. Viewed in this fashion, the electrical design of a power plant is unique to the power engineer because it is concerned with the type of problems involved in distribution, sub-station design, and customers' service. Mr. Paulus reported on studies made to show the methods of serving the utilization requirements of a modern coal-burning, unit-type generating station at the lowest cost. He recognized that local conditions, operating practices, system capabilities, and other factors may demand many modifications. In all cases, however, the particular requirements of the utilization equipment should be recognized, and the electrical supply tailored to fit in the most economical fashion.

J. H. Foote reported on recent activities of the AEIC-EEI-NEMA Joint Committee on Motor Starting Currents and the EEI-NEMA-ACRMA-REMA Joint Committee on Air Conditioning and Refrigerating Equipment. An article by J. W. Anderson relative to the latter committee appears on Page 121 of this issue of the BULLETIN.

A. V. DeBeech, Chairman of the Foreign Practice Division, discussed the report of his group. He then presented an interesting description, illustrated by slides, of an underground power plant being constructed in Brazil by his company.

J. Q. Wray made pertinent comments on a paper entitled "An Electrohydraulic Governor for Water Turbines" (ASEA). The original paper was written by a Swedish engineer, S. E. Hedstrom, and describes a newly designed electronic governor recently installed in Sweden.

C. L. Derrick, Chairman of the Operation and Maintenance Division, called on H. J. Klumb, sponsor of the subject "Generator Insulation and Testing," to report on recent activities of his group. Mr. Klumb recalled that there had been considerable discussion with the Prime Movers Committee regarding closer coordination between the two committees. He added that at the request of G. V. Williamson, Chairman of the Prime Movers Committee, E. F. Dissmeyer had attended that committee's meeting in Akron, where R. L. Webb, Consolidated Edison Co. of New York, Inc., presented a paper on d-c testing of generator insulation. Mr. Williamson expressed his appreciation for the committee's cooperation in this matter.

C. C. Farrell, Chairman of the Apparatus and Design Division, presided over a session at which C. F. Paulus, a member of ASA Committee C 19 on Standards for Industrial Control Apparatus, reported briefly on the progress of the current revision of this standard.

S. C. Townsend, in a report on bushing standardization, said that considerable progress had been made, and distributed an interim report prepared by a NEMA Joint Committee on Outdoor Apparatus Bushings. He added that J. Q. Wray would follow bushing standardization for the committee in the future.

Bell System Services

A progress report on "Leased Channels for Pilot Wire and Supervisory Purposes" was given by R. G. Meyerand. Indications are that the Bell System is making a sincere effort to improve its special services to utilities and in some areas joint committees composed of Bell engineers, commercial men, and utility engineers have been established. The importance of leased telephone wires as used by power companies has been stressed, and, after joint discussions, the telephone companies appreciate that these wires belong in a class with their most important services. As a result of a change in the Bell System commercial policies pertaining to special facilities, Bell will now lease a circuit at a flat charge regardless of the number of channels which may be derived, provided over-all power levels are not exceeded.

R. W. Wilbraham reported on recent activities of the EEI-AEIC-NEMA Joint Committee on Power Circuit Breakers.

The next meeting of the Electrical Equipment Committee will be held May 11-12, 1953, at the Sir Walter Hotel in Raleigh, N. C.

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Accompanying booklet ..... 5.00 per 100

Planned Lighting Program

Series of mailers and booklets promoting planned lighting for stores, schools, offices, industries and homes. Price list upon request.

Sales Training Program

Three Courses Available—Residential, Commercial and Rural
Prices Upon Request

Appliance Sales Training Course—6 Films and Records 250.00

Set of 6 Salesmen's Manuals for above course 4.50

Industrial Sales Training Handbook ... 18.50

Residential Lighting Film & Record ... 30.00

Residential Lighting Salesmen's Manual .75

Mother-Daughter Program

An electrical-living promotional program featuring a 27 minute color sound movie. Prices and details upon request.

OTHER PROMOTIONAL MATERIALS

Commercial Cooking

"Your Answer to Commercial Cooking ..... .70
Quantity prices upon request.

"Penny Folder"—"Invest One Cent in Electricity" ..... 4.50 per 100

Data Sheets 2.00 for first set
.75 each for next 14 sets
.25 each additional set if sent to one address

Electric Water Systems Council

"Case of the Missing Heart"
16.00 per 1000 (minimum order)

"Produce More Food." Leaflet
34.50 per 1000 (minimum order)

	Members	Non-Members
Electrical Living		
EM-2—"Dreams Come True When You Live Electrically"	5.00 per 100 copies (minimum order—100)	
Home Service		
EM-5—Electric Roaster (minimum order—100) 9.00 per C—10% extra non-members.		
"Carefree Cooking Electrically" 14.00 per 100 (minimum order—100)		
R-4—"Make Home Economics Your Profession"	7.00 per 100 (minimum order—100)	
R-14—"Patterns for Parties" 10.00 per 100 (minimum order—100)		
EM-1—"Appliance Demonstrations" 2.50 per 50 copies (minimum order—50)		
EM-3—"Open the Door to Modern Homemaking Education"	7.00 per 100 copies	
Water Heating		
EM-4—"Go Electric When You Need Hot Water" 4.00 per 100 copies (minimum order—100)		
Wiring Booklets		
M-8—"Handbook of Farmstead Wiring Design"	.40	.40
Quantity prices upon request.		
M-7—"Handbook of Residential Wiring Design"	.25	.25
Quantity prices upon request.		

Miscellaneous Publications

53-4—Bibliography of Heat Pump, Through 1951	1.00	1.00
52-17—Area Development Suggestions, Number 2	.15	.40
52-16—12th Electric Power Survey, 1952	.50	.50
52-15—"I Want to Know About the Electric Industry"—1952-1953 Edition	2 to 99 copies 25¢ each	
Quantity prices upon request.		
52-12—Area Development Suggestions #1, 1952	.40	1.00
52-4—EEI Pocketbook of Electric Industry Statistics, 1952	Single copies .50	
Quantity prices upon request.		
52-3—Report of the Industrial Development Subcommittee of EEI Rural & Urban Development Committee, 1952	.50	1.25
52-A—Report of Recreation & Travel Development Subcommittee of EEI Rural & Urban Development Committee, 1952	.25	.65
52-B—Report of Civic Development Subcommittee of EEI Rural & Urban Development Committee, 1952.	.25	.65
51-18—Specifications for Impregnated Paper Insulated Cable, High Pressure Pipe Type—1st Edition, AEIC, 1951	Single Copy 1.00	
10 or more	.85	
51-4 — Specifications for Impregnated-Paper Insulated Lead-Covered Cable Oil-Filled Type, AEIC, 1951	Single copy 1.00	
10 or more	.85	
50-14—"Protection of Electric Service from Sabotage and Enemy Action," 1950	Single copies .20	
Quantity prices upon request.		
50-7—Specifications for Alternating-Current Power Circuit Breakers (2nd Edition), AEIC, 1950	.60	.60
50-6—Principles for Sound Water Resources Development, 1950	21.00 per thousand	
	3.00 per hundred	
R-17—Specifications for Impregnated Paper-Insulated, Lead-Covered Cable, "Solid" Type (8th Edition) AEIC, 1949	1.00	1.00
R-12—Electrical Metermen's Handbook—6th Edition—1950	Single copy 3.30,	4.90
Quantity prices upon request.		
Q-11—Suggested Field Test Procedure for Determination of Co-efficient of Performance Factor of an Electric Heat Pump While Operating on Heating Cycle, 1948	.25	.25
Q-5—Specifications for Impregnated Paper-Insulated Lead Covered Cable, "Low Pressure, Gas-Filled" Type—AEIC 1948	Single copies 1.00	
10 or more "	.85	
P-6—The Heat Pump, 1947	.25	.25
Objective Type Rates, 1933-1936	.80	2.00
Rate Book for 1952-53	20.00	30.00
Weekly, Monthly and Annual Statistics	2.00	2.00
(Includes Annual Statistical Bulletin; Weekly Electric Power Output; Monthly Electrical Research Statistics)		

Periodicals

Better Light—Better Sight News (6 issues yearly)	1.00	1.00
Edison Electric Institute Bulletin (Monthly)	2.00	2.00
Farm Electrification (a bi-monthly publication) Up to 10 copies	Free	
Over 10 copies	.75	1.00
Quantity prices upon request.		
Home Service Exchange Yearly subscription	1.00	1.50
One free copy to members upon request.		

Personals

Herbert J. Scholtz, President and a Director, Southern Services, Inc., has been named a Director of the Mississippi Power Co., an affiliate of Southern Services.

David A. Lewis, General Operating Superintendent, New York State Electric & Gas Corp., has been elected Vice President in Charge of General Operations.

Following his graduation from Pennsylvania State College in 1923, Mr. Lewis became associated with the Public Service Corp. of Northern Illinois, where he was employed for two years before joining New York State Electric & Gas as a distribution engineer. He filled positions of general engineering, operational, and managerial natures before he was appointed general operating superintendent in 1949.

Robert E. Ginna, Executive Vice President, Rochester Gas and Electric Corp., has been named Chairman of the Electric Companies Public Information Program. The new Vice Chairman is **Henry B. Sargent,** President, Arizona Public Service Co.

Since the resignation of **J. W. Parker,** retired President, The Detroit Edison Co., as program chairman, the position has been filled by **J. B. Thomas,** President, Texas Electric Service Co.

John T. Kimball, Vice President, Arizona Public Service Co., has been named Executive Vice President in Charge of the Sales and Service Group, and Vice President **A. H. Forman, Jr.,** has been advanced to Executive Vice President in Charge of Planning and Production.

In other changes, Treasurer **John L. Liecty** received added duties as head of the Financial and Accounting Group, and Vice President **D. B. McGregor** was made head of the Sales and Personnel Departments.

J. A. Page, General Manager, Southern Canada Power Co., has been elected a Vice President and Director. Since joining the company in 1918 as its first apprentice, Mr. Page has worked in the Meter, Transformer, and Accounting Departments, and as a system operator, a wireman, and manager of four branches. In 1948 he was appointed assistant general manager of the company and four years later was named general manager.

W. R. Wolfe, Vice President, Oklahoma Gas and Electric Co., has been elected President of the Oklahoma Utilities Association for 1953. The Association's new Treasurer is another Oklahoma Gas and Electric official, **H. H. Ferrin,** Vice President and Treasurer.

Balfour S. Jeffrey has been named to the newly created position of Assistant President, Kansas Power and Light Co. For the past 20 years, Mr. Jeffrey has been an associate of a Topeka law firm which serves KPL.

A member of the faculty of Washburn Law School where he teaches corporation and trusts, Mr. Jeffrey is a graduate of Kansas University and of the Harvard Law School. During World War II, he was with the judge advocate general's headquarters in Washington. He has been a member of the Labor Dispute Panel of the American Arbitration Association and of the War Regional Panel board in Kansas City.

In his legal work with utilities, he participated in the dissolution and reorganization of North American Light and Power, Illinois Power Co., and Iowa Power and Light Co.

L. E. Patterson, Superintendent of Electric System Planning, Public Service Co. of Colorado, has been named as Assistant to the President.

Other organizational changes announced by the company include promotion of **R. F. Throne,** Superintendent of Steam Generating Plants, to Chief Mechanical Engineer; **M. L. Robertson,** Assistant Superintendent of Hydro Production and Transmission, to Chief Electrical Engineer; **H. A. Burt,** Assistant Superintendent of Hydro Production and Transmission, to Superintendent of Steam Operations; **A. A. Woodward,** Superintendent of Steam Production, to Superintendent of Production; and **M. H. Powell,** Superintendent of Electric Distribution, who will assume additional responsibilities while retaining his present position.

James Gray, Comptroller, Western Massachusetts Electric Co., has been named Treasurer, succeeding **Joseph F. Lyon,** who has retired. Elevated to Comptroller was **Norman F. Plante,** Assistant Comptroller.

Mr. Lyons began his association with the company in 1903 when he started as a meter reader for the former United Electric Light Co. Later he worked in the Accounting Department and held the position of comptroller before he was named as treasurer in 1939.

In addition to his new duties, Mr. Gray will continue in direct charge of the Tax Department. He has been with the company for 39 years and has been assistant treasurer since 1942.

A graduate of Boston University, Mr. Plante joined Turner Falls Electric Co. in 1936 and, following consolidation of Western Massachusetts Companies' susbsidiaries, in 1942 he assumed added duties as system control accountant.

Two executives of Western Massachusetts Electric Co. have been given new titles as a result of revision of department names. **Donald A. Bartlett,** former Research Engineer, is now Director of Industrial Relations. The Director of Rates and Economic Research is **Lester W. Frank,** whose former title was Rate Engineer.

The revised names were selected to describe more accurately the work of the departments which Mr. Bartlett and Mr. Frank head.

Mrs. Nancy Y. Schofield, Secretary to the President, Kansas City Power & Light Co., has been named Assistant Secretary of the company. She will continue to serve as secretary to the president, a position she has held for two former chief executives.

P. A. Rice has been named Director of Personnel Development for the West Penn Power Co. Other promotions announced by the company include the appointment of **Walter Y. Cottom** as Personnel Manager, **John K. Walter** as Manager of Employment and Training, **Robert D. Crissman** as Employment Supervisor, and **G. Kenneth Gering** as Supervisor of Personnel Research. Prior to their promotions, all were serving in various Personnel Department positions.

An addition to the staff is **Dr. Harold J. O'Brien,** former faculty member of Pennsylvania State College, who has been appointed Training Supervisor.

M. T. Crawford, Chief Engineer, Puget Sound Power & Light Co., has retired after 47 years with the Puget Sound System.

Simultaneously with his retirement, Mr. Crawford resigned from the EEI Transmission and Distribution Committee, having served on the committee and its predecessor groups for 31 years.

A native of Louisville, Ky., Mr. Crawford graduated from the University of Washington in Electrical Engineering, having previously been engaged in switchboard construction work with firms in Louisville and Seattle. In 1906 he became associated with the Seattle Tacoma Power Co. as a draftsman, advancing to foreman of construction, and from 1912 to 1919 served with the Puget Sound Traction Light & Power Co. as superintendent of transmission.

In 1919 he was named superintendent of distribution for Puget Sound Power & Light Co., becoming general superintendent of the Central Division in 1930, assistant chief engineer in 1935, and chief engineer in 1942. At various times he also served as a consulting engineer for the Hawaiian Electric Co., Key City Light & Power Co., Superior Portland Cement Co., The Washington Water Power Co.., and Pacific Gas and Electric Co.

Mr. Crawford became associated with the forerunners of the present Transmission and Distribution Committee in 1922 as a member of the NELA Underground Systems Committee, later serving on the NELA Overhead Systems Committee. Author of many published technical papers and articles, he was also associate editor of the NELA *Underground Systems Reference Book.* He is a licensed professional engineer in the State of Washington and a member of many professional societies.

F. Maynard Reed, Assistant Electrical Engineer, Pennsylvania Electric Co., has been named Superintendent of the newly-created System Economy Department. Assistant Superintendent of the department will be **Erving L. Bussey,** Chief Engineer of the Deep Creek Hydro station.

Mr. Reed, who has held his former position for the past eight years, joined Penelec in 1928. The department which he will head will be responsible for economic scheduling of generating units and loading of transformer lines of 66 kv and over.

Mr. Bussey, who joined the company five years ago, assumed his duties at the hydro station in 1951.

Dr. S. F. Whirl, Chemical Operating Engineer, Duquesne Light Co., was one of three American chemists invited to present papers before the recent IV Congress International du Chauffage Industrial at Paris, France. His paper on "The Perplexing Problem of Silica in the Steam Power Industry" was presented in absentia.

A member and former chairman of the Power Station Chemistry Subcommittee, EEI Prime Movers Committee, Dr. Whirl is the author of many articles on power station chemistry which have appeared in technical publications and is associated with numerous national chemical committees.

Joseph E. Formichella, Engineering Consultant, has been appointed Manager of Rights of Way for the Jersey Ceneral Power & Light Co.

Mr. Formichella, who will be responsible for the acquisition of all lands and rights of way, formerly was with Gilbert Associates, Inc., engineers and consultants for JCP&L. For the past five years he has been assigned exclusively to rights of way activities.

Nuclear Power and State Power

(*Continued from page* 107)

and not in the area of mere technical means that we must seek the essential differences between our way of life and that of Marxists' theory and practice. Only by spiritual values, founded ultimately in God, are civilizations really justified. The founders of our nation had the courage to tell the world of their firm belief in this truth. For the rectitude of their action in the Declaration of Independence, they appealed, not to any fuzzy legalistic theories, but "to the Supreme Judge of the World," the author of all liberties.

Our nation has lost much of that original awareness of the primacy of the spirit. This loss has created a vacuum in which collectivist theories can thrive. And atomic power for the industrial machine is an obvious segment of the economy on which a collectivist bridgehead can be established. We must be alert to this danger.

Unless we can hitch our consideration of the problems of atomic energy and "Seven (b) Day" to such eternal verities as these, we will all be like a magnificently organized crew on a technically perfect ship in the middle of an ocean without compass and without a place to go. If we build industry and science without thinking of human and spiritual values, we are making of them false Gods to whom we offer human sacrifice.

During this last century, we have acquired great materialistic knowledge and power, but at too high a price—loss of spiritual values. We were perhaps in a fair way to that bankruptcy of soul which Christ warned of in terms that the business of His age could understand, "What does it profit a man if he gain the whole world and suffer the loss of his soul?"

The awful threat of the fissioning atom in war has pulled us up short in our flight from the Spirit. May this reversal continue and expand as we move into the new era of peacetime nuclear energy.

EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

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(Terms Expiring 1955)

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EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

(Continued)

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